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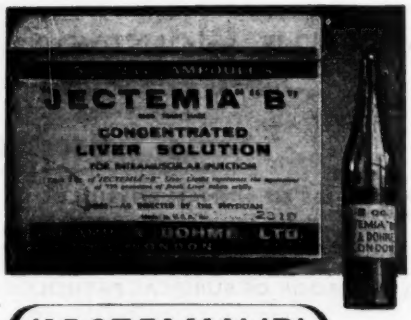

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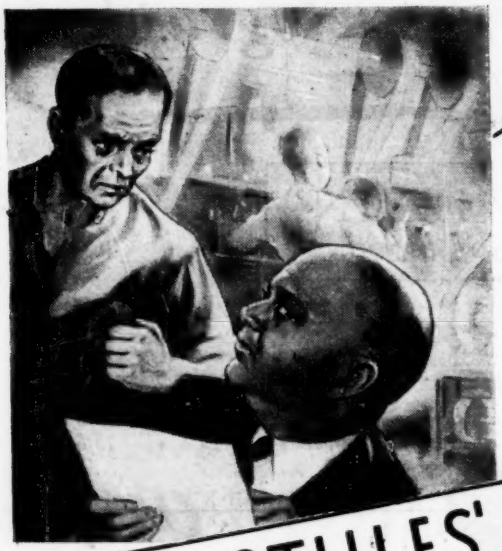

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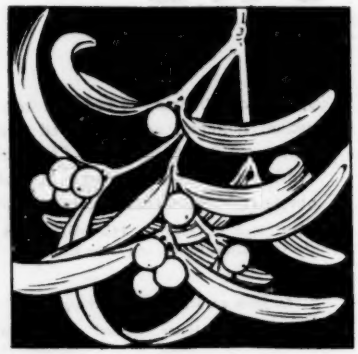

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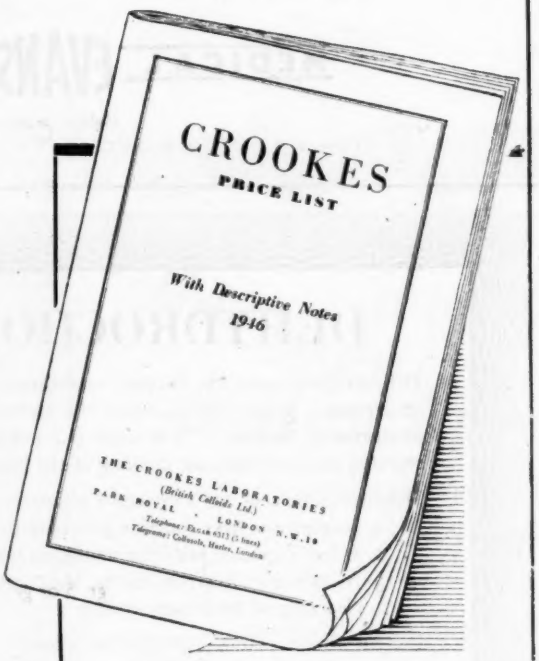

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HON. PHYSICIAN TO ADDENBROOKE'S HOSPITAL, CAMBRIDGE

MOST patients who are ill want an answer to three questions: Shall I get quite well? How soon will this happen? If I cannot recover completely what will be the limits of my activity in the future?

There are often reservations in asking and answering these questions. The patient may shrink from putting his hopes and fears to the test; the doctor may not want to commit himself more than he need. Constraint on both sides is natural; but the doctor should realise that the three questions are likely to be in the patient's mind, and should prepare himself to answer them as soon as and as fully as he reasonably can. To frame answers is to reach the goal of much scientific thought and method; for in prognosis we see the combination of scientific knowledge and human understanding—the quintescence of years of study of medicine and people, reduced to what the patient wants to know in terms he can understand. This goal is hard to reach, because its attainment demands ability both to solve the scientific problems of medicine and to interpret the solutions wisely to people in every walk of life. One of the great difficulties confronting medical education is to produce doctors who are efficient in both these spheres.

It is true that for many patients, even when all possible clinical and laboratory data have been obtained, the prognosis is too vague to justify an emphatic pronouncement; and it is better to be non-committal than to box the compass of probabilities and possibilities. In others the prognosis is so bad that it would be cruel, except in rare circumstances, to be anything but reserved. But after eliminating all cases in which the prognosis is too uncertain or too serious to help the patient, there remain many in which it is sufficiently definite and encouraging to be passed on. The doctor should aim at making the greatest practical use of prognosis in this third group.

In so doing we have to remember three things:

1. Any illness brings with it anxiety in some degree. The amount of anxiety may depend more on the patient's temperament and environment than on the seriousness of his condition.
2. Uncertainty increases this anxiety.
3. To give a bad prognosis to the patient almost always does more harm than good.

In giving a prognosis therefore one should be as definite and encouraging as possible. I do not, of course, suggest unbridled optimism; for any success this brings is unlikely to last long, and the patient may find it hard to get out of the succeeding slough of depression. But wherever a definite and encouraging prognosis can be given the patient should have the benefit of it.

REACHING A PROGNOSIS

Textbook accounts of the prognosis of a particular disease are usually based on statistical studies, and the views of others, coloured by the author's own experience. The result is very different from the prognosis to an individual expressed at the bedside. Here the syndrome presented may not fit into any textbook classification; and even if it does it is modified by constitution, idiosyncrasy, and concurrent disease, and by environmental stresses and strains. The newly qualified doctor, having made a diagnosis, must base his prognosis largely on what he has read; but the older physician can allow for the complex modifying influences he has observed in other patients down the years. The prognostic possibilities in a disease like subacute rheumatism cannot be fully appreciated without years of experience—years in which the little girl whose heart seemed to be crippled beyond hope has been seen to grow up, and bear children, and yet retain a fair measure of compensation.

An accurate prognosis depends first, however, on an accurate diagnosis. What is needed is not so much the choosing of the correct word-label as a clear conception of the natural history of the disease and the stage it has reached in the patient. Once this is established, a rough gauge of the possible trend of events can be found in a textbook. But the patient in his environment is the soil which nourishes the disease, and the qualities of both patient and environment must be studied as carefully as the signs of the disease itself. The patient is seen in the light of his family history, his response to disease in the past, and what is known and observed of his temperament. A picture of his environment is obtained from information given by himself and his relatives and friends, and by direct observation if he is visited at home.

In the final summing up, all three factors—the patient, the environment, and the disease—have to be weighed.

With some patients, the environment is so full of distractions that the whole picture is blurred. When this is so, removal to a standardised environment in a hospital or nursing-home may be a great help. Quite apart from the fact that investigations can be done there which cannot be done at home, removal enables simple clinical observations to be made under known conditions. Accurate records of temperature, pulse-rate both awake and sleeping, bowel action, urinary output, appetite, sleep, and the amount of urine passed on a known diet, may when other evidence is equivocal provide decisive clues to diagnosis and prognosis. One of the big advantages of special and complicated investigations is that they give one an acceptable excuse for moving patients to a hospital where they can be studied as it were in vitro.

FAMILY HISTORY

Just as in a picture the significance of the background is inversely proportional to the prominence and vigour of the central theme, so family history is related to prognosis. Thus in a patient with advanced malignant disease of the stomach the family history is unimportant. But when the clinical picture is vague the family history may have considerable prognostic bearing.

Two men of 55 who were leading strenuous lives were anxious about their hearts. Both complained of pains in the chest but had no other symptoms. On examination, the only differences between them were that the first had a slightly plethoric appearance and his blood-pressure was 150/90, while the second looked fit and his blood-pressure was 145/80. Both their hearts were normal radiologically and their electrocardiograms were also normal.

The first man, however, gave a family history of sudden death from cerebral or coronary accidents in seven near relatives; his grandfather, an aunt, and an uncle on his father's side, all between 60 and 70, his father at 47, one sister at 35, and two brothers at 28 and 30. In contrast the second patient's father and mother and three grandparents had lived to be over 80, and his other grandparent to 75, while most of his great-grandparents were also very long-lived. These facts meant that the prognosis in the two cases was different.

Rheumatism in various forms is another example of disease which tends to afflict some families more than others and in which the family history may help to determine the seriousness of the symptoms.

A woman of 43 had had severe and increasing pain in the back and shoulders for a year with no other definite clinical signs. The fact that her father was crippled with "arthritis" at the age of 47, and an aunt and a sister both had severe "rheumatoid arthritis," was a prognostic red light.

Sometimes there is a pronounced background of ill health in a family which is a general rather than a specific warning.

* Companion papers on Treatment and on Diagnosis have already appeared in THE LANCET, 1943, i, 163; 1943, ii, 561.

For example, a little girl of 3 appeared to have early cœliac disease. On inquiry it was found that her maternal grandmother had suffered from spasmodic asthma and her father from migraine ; a paternal uncle had had a limb amputated for Buerger's disease, a sister had epileptic attacks, and a first cousin on her father's side had died as a child from malignant disease of the kidney.

When a careful family history is systematically taken, it is surprising how often facts will crop up which have a bearing on both diagnosis and prognosis in a difficult case. It must be emphasised, however, that such evidence is mainly of secondary importance.

PROGNOSIS IN SPECIAL DISEASE GROUPS

Prognosis is required where the bodily powers of a patient are affected by functional and organic disorders. Although these disorders often do not fit textbook descriptions of disease, there are many which do. Of the latter, certain fairly well-defined groups are worth commenting on separately. The divisions between these groups are arbitrary and patients might often be placed in more than one of them.

1. *Acute infection with specific treatment* (diphtheria, lobar pneumonia, cerebrospinal fever, staphylococcal septicæmia).—Here the prognosis depends firstly on the speed and efficiency with which the specific treatment is applied, or, if it has already been applied, on the signs indicating response.

2. *Acute infections without specific treatment* (acute anterior poliomyelitis, typhoid fever, mumps).—Here prognosis depends on knowledge of the natural history of the disease, and especially the limits of variability, rather than on knowledge of the typical case. Knowledge of possibilities, even though rather remote, will often leave a loophole for hope and encouragement. One of the most striking features of a severe epidemic of infantile paralysis is the extreme variation not only in initial paralysis in patients with similar symptoms but also in the degree to which established paralysis recovers and its rate of doing so.

Two children in the same family had exactly similar symptoms and signs at onset, and the changes in their cerebrospinal fluids were almost identical. The first was grossly and permanently paralysed in all four limbs and trunk, and remained a cripple ; the second did not develop any paralysis at all.

3. *Chronic disease with specific treatment* (diabetes, pernicious anæmia, myxœdema).—Here, apart from environmental and temperamental factors, confirmation of response to specific treatment and the presence or absence of intercurrent disease are the chief considerations which may modify the textbook prognosis. Thus, in the elderly diabetic the prognosis depends not so much on the severity of the diabetes as on the condition of the cardiovascular system. Sometimes patients who appear to have typical pernicious anæmia fail to give the expected response to liver therapy, thus entirely altering the prognosis. When it is known that such anomalies exist, it is wise when giving a good prognosis to make a reservation about response to treatment, until the therapeutic response has been proved. I was once confronted by a typical case of myxœdema in which an optimistic prognosis proved wrong because the exhibition of thyroid caused immediate anginal symptoms.

4. *Chronic diseases liable to natural remissions* (disseminated schlerosis, rheumatoid arthritis, lymphatic leukemia).—There are many chronic diseases which progress by a series of remissions and relapses, and the prognosis given is apt to vary according to whether the patient is seen on the crest or in the trough. The best guide is obtained by careful study of progress in the past, for this will often indicate the particular phase which has been reached. When a disease like disseminated sclerosis is seen during the first attack, prognosis is necessarily guarded, but it is a mistake to be very gloomy until the frequency and severity of subsequent attacks have shown how it is likely to progress. All disability may disappear for a time and there may be years of health and activity ahead.

5. *Acute disease superimposed on chronic disease.*—Sometimes during the course of chronic disease an additional acute disease develops. When this happens, it may be extremely difficult to assess the disability from each. There is a natural tendency to assume that the chronic process is wholly responsible, with the result that the prognosis given is unduly bad, since the potentialities of recovery in a chronic process are usually less than in an acute one. Examples of this are acute pneumonia in the course of lung disease, acute nephritis in the course of chronic nephritis, or coronary thrombosis in chronic myocardial disease. Careful study, particularly of the history, will sometimes prevent mistakes thus caused.

PROGNOSIS IN SICK COLLEAGUES

Some of the most difficult prognostic problems arise in looking after sick colleagues. It is the lot of some doctors to watch with clear faculties their own death approaching, with certainty which only their own experience can give. But these are mercifully few, whereas many are a prey to anxieties of their own making which arise because of their medical knowledge. All that can be said is that many of their fears and anticipations are groundless and can be allayed by early recognition and frank explanation. It should be a constant aim to be aware of these fears and to be on guard against doing or saying anything which can cause them.

During the worst stages of many severe illnesses the faculties are commonly clouded and symptoms lose their significance even to the trained medical mind, so that a sick doctor can be given comfort when scientifically there is very little hope. Often the very darkness of a background helps to throw into relief slight reasons for encouragement. That sensation is blunted and the image blurred should be remembered.

PROGNOSIS AND POSITIVE HEALTH

In history-taking it is often not difficult to trace backwards the sequence of pathological and environmental processes which have led to gross organic disease, and confirmation that a particular train of events has led to death is often found in the post-mortem room.

Prognosis in its widest sense is the reversal of this process. From a single uncorrected deviation from normal it may be possible to foretell a series of probable effects, especially when for the family doctor it is combined with a knowledge of the patient's family history, occupation, environment, past history, and temperament. If, for example, the prognostic possibilities of undernutrition and overnutrition, postural and breathing defects, slight indigestion, recurrent nose and throat infections, oral sepsis, dental insufficiency, and mild anxieties were recognised in the early stages, and if these conditions were treated by eradicating the cause or applying appropriate corrective measures, a great deal of disabling illness, especially in those over forty, would disappear and active lives would be prolonged. With the consequent improvement in the general level of health other more serious and less obviously connected diseases would probably tend to diminish too.

There is nothing new in the idea that prevention is better than cure, but in some medical practice the recognition of this truth is still mainly passive. "Positive health" is a term coined to express an attitude in which doctors are as actively concerned in the maintenance of health as in the treatment of established disease. In action this would mean a change of approach to the patient—especially by those in general practice, who see the patient for the first time and often have the chance to spot trivial disorders and more serious disease

in its early stages. One of the main features of this change would have to be increased interest in the prognosis of slight disorders of structure and function.

To bring about this change of approach it is first necessary to rouse in the student and newly qualified doctor a lively interest in the immediate and remote prognosis of slight disorders so that he will learn automatically to picture them, not as isolated entities, but as links in a chain of functional and pathological changes between health and gross disease. Once this interest is aroused, he will soon realise that the dyspepsia or the limp for which no "organic" 'cause can be found is at least as interesting as the active ulcer or the diseased hip-joint, and abdominal "lumps" and cardiac murmurs will be seen in their proper perspective.

There is one further aspect of prognosis which with the technical development of medicine is becoming more important, and that is the necessity to explain away as soon as possible positive findings which do not indicate disease.

Almost every technical advance in medicine has made it possible to demonstrate fresh variations within the limits of normal which would previously have passed unnoticed. The stethoscope revealed the benign systolic murmur, the sphygmomanometer the slight degree of hypertension, X rays the dropped stomach. Almost any special test may show some previously undetected sign which experience proves to have no prognostic significance. It is becoming an increasingly important part of prognosis to see that if the patient has been allowed to get wind of such findings, their lack of any sinister implication is at once explained to him. If this is not done, one result of the present zeal for early diagnosis and prevention—as for example by mass radiography and universal instruction about venereal disease—may be a good deal of unnecessary suffering and loss of efficiency.

CONCLUSION

My excuse for this sequence of platitudes is that many people today carry unnecessary burdens of anxiety about their health which limit their happiness and activity, and that they bear these burdens for lack of the reassurance which could have been given without delay.

Failure to give a prognosis when it can be good or reasonably good is one of the major sins of omission. The consideration of prognosis should be foremost in a doctor's mind, not only because it is a stimulating academic exercise but also because to give a prognosis—with any necessary reservations—is an essential step towards managing and treating the patient as well as possible.

A TRANSMISSIBLE DISEASE IN RATS
INOCULATED WITH MATERIAL FROM CASES OF INFECTIVE HEPATITIS *

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A CONSIDERABLE amount of information concerning infective hepatitis, homologous serum hepatitis, and post-arsenotherapy hepatitis has been obtained in recent years by experiments on human volunteers. There is however no doubt that more complete knowledge could be more readily obtained if a susceptible animal was available for experimental purposes. Successful transmission of infective hepatitis to pigs, guineapigs, mice, canaries, and chick embryos has been reported recently by Scandinavian, Dutch, and German workers, and G. M. Findlay has recorded from West Africa the production of liver necrosis in two cercopithecus monkeys which received injections of neoarsphenamine and icterogenic serum; but experiments in other laboratories have so far failed to confirm these results.

All our attempts to transmit these three types of hepatitis to the usual laboratory animals have to date been unsuccessful. We have also failed in experiments where an attempt has been made to lower the resistance of the animal by exposure to X rays, splenectomy, injections of various arsenicals, injections of alloxan, and infections with certain bacteria.

Suggestive results have however been obtained in white rats fed on a diet deficient in some essential amino-acids. It has already been shown that necrosis of the liver can be produced in some strains of rats by feeding them on diets deficient in certain essential amino-acids, and that by varying the constituents of the diet the rapidity of production and severity of the lesions can be controlled. As a result of their experiments Himsworth and Glynn provided us with the formula for a diet which produced a few microscopic lesions in the livers of 9% of rats fed on it for about 60 days. It was hoped that by means of this diet the resistance of the rats might be sufficiently reduced to make them susceptible to the agent of infective hepatitis without complicating the picture by purely dietary lesions and deaths. Each rat received 8 g. daily of the diet, which consisted of dried brewers' yeast 16%, casein 4%, corn starch 71%, cod-liver oil 1%, arachis oil 5%, and salt mixture 3%; plus vitamin supplement to supply each rat daily with thiamine hydrochloride 20 μg., riboflavine 25 μg., pyridoxine 20 μg., and calcium pantothenate 120 μg.

* A report to the Medical Research Council.

PRELIMINARY EXPERIMENTS

In the first series of experiments, which was carried out at the Department of Pathology, Cambridge, twelve white rats of the Wistar strain weighing 70 g., which had been on the diet for 60 days, were injected on three successive days with material from cases in an institutional epidemic of infective hepatitis. Nasal washings were instilled intranasally, blood was injected intraperitoneally, fæces were injected into the stomach by catheter, and urine was given in the drinking-bottle. The deficient diet was continued. Blind passages of liver, spleen, and kidney were carried out every 21–28 days, using groups of four to six rats which had been on the diet for 60–120 days. Sterile tissues were pooled, ground in a mortar, and inoculated as 20% suspensions in broth orally and intraperitoneally. Tissues were stored at − 20° C till used. Five passages were carried out before this series was stopped. Ten human volunteers who received oral or subcutaneous injections of the 4th-passage rat material did not develop any signs or symptoms of hepatitis or other illness. None of the rat tissues of this series showed any macroscopic or microscopic lesions. At this stage the work ceased for 6 months.

SUBSEQUENT FINDINGS

The work was resumed 6 months later at the Wellcome Laboratories of Tropical Medicine with rats of the same strain and size and fed on the same diet as previously. The initial group of six rats, which had been on the diet for 40 days, were injected intraperitoneally with 1 c.cm. of whole blood and orally with fæces collected on the first day of jaundice from a single case of infective hepatitis. Two of the rats were killed on the 20th day. Pools of sterile liver, spleen, and kidney were inoculated intraperitoneally into six rats which had been on the special diet for 50 days. These rats also received serum and fæces collected from two cases of infective hepatitis on the first and fourth day of symptoms respectively. In all subsequent passages only organ suspensions were used, and doses of 1 c.cm. were given by mouth and/or intraperitoneally. In the 2nd, 4th, and 6th passages bacterially contaminated tissue suspensions were passed through Seitz EK filters, but in all later passages all suspensions were filtered through a 750 mμ Elford Gradocol membrane.

In this series the rats were kept on the special diet for a much shorter time before inoculation than in the first series. This was purely fortuitous in the first instance, being due to the irregular supply of animals and the desire to pass material as quickly as possible without undue storage. In the 4th–6th passages rats had been on diet only 21–30 days when inoculated, and in the 7th passage for only 7 days. All later passages were carried out in

DEGREES AND FREQUENCY OF MACROSCOPIC AND MICROSCOPIC LESIONS

Passage	Dilution	No. of rats	Days on diet before inoculation	Survivors 10th day	Killed	Died	Lesions	
							Macroscopic	Microscopic
Original inoculation	1/5	5	40	5	*19, 19, 43, 43, 81	..	..	..
1st passage	1/5	6	50	6	22, 22, 22, 42, 44, 68	..	..	..
2nd ,,	1/5	6	56	6	20, 20, 20, 41, 62	*38	..	..
3rd ,,	1/5	6	92	6	19, 19, 40, 40, 61	15	..	1
4th ,,	1/5	6	21	5	19, 19	15, 39, 41	1, 5	1, 5
5th ,,	1/5	6	21	5	19	15, 16, 21, 21	3, 4	1, 3, 4
6th ,,	1/5	6	21	4	18, 20, 20	53	3, 4	1, 3, 4
7th ,,	1/5000	7	7	6	..	14, 15, 16, 16, 23, 48	1, 3, 5	1, 2, 3, 5
8th ,,	1/5000	12	15	9	..	17, 25, 27, 27, 30, 32, 32	3, 4, 5	1, 3, 4, 5
,, ,,	1/50,000	11	15	10	..	11, 20, 46	1, 3, 4, 5	1, 2, 3, 4, 5
9th ,,	1/10	6	7	6	21	20, 21, 21, 33	1, 3	1, 2, 3
,, ,,	1/50	6	7	3	..	30, 32, 42	3, 5	1, 2, 3, 5
,, ,,	1/500	11	7	8	..	14, 20, 21, 30, 36, 36, 36, 50	1, 3, 4, 5	1, 2, 3, 4, 5
,, ,,	1/5000	4	7	4	..	21, 30, 32, 37	1, 3	1, 2, 3
,, ,,	1/500,000	5	7	5	..	18, 61	..	..
,, ,,	1/50,000,000	5	7	5	..	45	..	..

* refers to number of days after inoculation.

2nd, 4th, 6th passages are Seitz EK filtrates. 7th, 8th, 9th passages are 750 mμ Elford Graüocol membrane filtrate.

Nos. 1, 2, 3, 4, 5 under "Lesions" refer to liver, spleen, lymph-glands, stomach and/or intestine, and lung respectively, and indicate the site of lesions occurring in each group.

rats which had been on diet 7–21 days, since this yielded satisfactory results. Animals of the 1st, 2nd, 3rd, 4th, 5th, and 6th passages were killed on the 16th to 21st day for passage. In subsequent passages tissues from animals moribund or dead with specific lesions on the 12th–21st day were used.

Considerable trouble was encountered in the stocks of rats, which were supplied from two sources. Those from one breeder often had lung abscesses, and some of those from the other had *B. morgani* infections. The pathogenicity of *B. morgani* for rats on the deficient diet is being investigated. In none of these rats did lesions appear similar to those described below. Some of the rats on the diet died before they were inoculated, and a few died after they had been injected, particularly in the first week after inoculation, with no apparent macroscopic or microscopic lesions of any organ. Though some of the deaths may have been acute deaths due to the disease described below, only deaths ten days or more after inoculation have been considered in this report.

There were no abnormal signs or symptoms or macroscopic or microscopic lesions in either the six original rats or the six of the first passage. All six rats of the 2nd passage showed loss of appetite 20–25 days after inoculation but no apparent histological changes. In the 3rd passage all rats looked poorly 15–18 days after inoculation, and in all further passages loss of appetite, roughening of the fur, and sluggishness were symptoms common to all the sick animals. The results of passage on virulence up to the 9th passage and over a period of 7 months can be seen in the accompanying table. Further passages since that time have shown little variation.

The first histological abnormalities were seen in microscopical examination of the liver of rats of the 3rd passage killed on the 19th and 40th days after inoculation and after 111 and 132 days on diet. The findings included loss of definition of the columns of parenchymal cells, small collections of inflammatory cells, mainly in the portal tracts, vacuolation of nuclei, and definite margination of the chromatin. Macroscopic necrosis of the liver was first present at the 4th passage. It occurred in two rats 39 and 41 days after inoculation and after 60 and 62 days on the diet. In one of these two rats there was also massive hæmorrhage in the lungs, and in the other there was hæmorrhage in the mesenteric lymph-glands. Submucous hæmorrhages in the stomach were first seen in a rat of the 5th passage. These macroscopic and microscopic changes of liver, lung, lymph-glands, stomach, and intestine and microscopical evidence of inflammatory changes in the spleen appeared in varying degrees and frequency from then onwards in future passages, as shown in the table.

Beginning at the 8th passage, inoculations were also made in rats on a 6% casein diet. Though gross necrosis of liver was not seen in such rats until the 4th passage, macroscopic lesions in lymph-glands and stomach and microscopic changes in the liver and spleen were present at 1st passage and were produced as frequently and after the same intervals as in the rats on the 4% casein diet.

Passage has been successful by either the oral or the parenteral route, but for most passages both routes have been used. Passage has been successful with suspensions of liver, spleen, lymph-gland, and kidney ; other organs and excreta are being tested.

An attempt to produce lesions in six rats placed on the special diet at the same time as they were receiving 3rd-passage material with no preparatory deficient diet was unsuccessful, as was inoculation of six rats which had been on 4% casein diet for 12 days and were placed on normal diet after receiving 9th-passage material. Lesions have not been produced as yet in nine normal rats of the same weight fed on a normal diet throughout the experiment. Successful passage has not been obtained as yet in baby rats, mice, or guineapigs. After two passages through chick embryos inoculated into allantois and yolk sacs, pools of embryos and membranes did not produce lesions in rats on 4% casein diet.

As control, a group of six rats of the same strain and weight on a 4% casein diet were inoculated with normal human serum and fæces. Using groups of four to six rats, 9 passages of liver, spleen, kidney, and lymph-glands involving fifty rats have been carried out at 19–21 day intervals in the same manner as those started on human hepatitis material. Though occasional non-specific deaths have taken place, no lesions similar to those described above have been seen.

A neutralisation test, using the convalescent sera of the patients supplying the original material, though not entirely satisfactory, gave suggestive results.

In a preliminary filtration carried out with the help of Dr. W. J. Elford, typical macroscopic and microscopic lesions were produced after 18 days in one of four rats inoculated with a filtrate of a 63 mμ Elford Gradocol membrane, the smallest average pore diameter tested.

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DELIMITATION OF SUBCORTICAL TUMOURS BY DIRECT ELECTROGRAPHY

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FOR nearly ten years indirect electro-encephalography has been used as an aid to location of cerebral tumours (Walter 1936, 1937, Williams and Gibbs 1939, Krynauw 1939, Cobb 1944). The results and implications of routine indirect recording, with electrodes on the scalp, have been confirmed by direct exploration of the brain exposed during surgical operations (Foerster and Altenburger 1935, Walter 1936, 1937, Schwartz and Kerr 1940, Scarff and Rahm 1941).

These studies all agree in concluding that a space-occupying lesion has two effects on the electrical activity of the brain. There is, first, the indirect action which may be due to œdema, vascular changes, or a more subtle metabolic upset, leading to the production of very slow potential changes at 0·5–3 cycles per sec., the " delta waves " by which location is usually achieved in indirect electro-encephalography. Secondly, there is the direct substitution of new growth for nervous tissue, with the result that all electrical activity disappears entirely. The space-occupying lesion, tumour, abscess, or hæmatoma, is quite inert electrically. In cases with very large superficial tumours this area of electrical inactivity can sometimes be detected in indirect records. The differences between normal brain in any area, abnormal brain, and inert tissue are very striking when the cortex is explored directly, and the extent of a superficial lesion may be precisely defined by this means.

Often enough, even after location of a lesion by neurological examination, E.E.G., and air replacement, exposure of the cortex may reveal nothing, and the surgeon must resort to needling of the subcortical tissue. In this he relies on his sense of touch and pressure and on the chance of withdrawing from the tumour a small quantity of material for biopsy or analysis. If the lesion has the same consistency as brain, needling may be of no avail and in any case is inadequate to delimit the extent of the lesion.

TECHNIQUE

To supplement the subjective method, a needle electrode has been made with which the electrical activity of the subcortical structures may be recorded. The construction of this electrode is shown in fig. 1. The basis is a hollow silver brain-needle. Over this is drawn a thin transparent plastic insulating sleeve, leaving only the tip bare. Down the bore is passed a gauge-30 silver wire, also insulated in fine-bore plastic sleeving. The end of this wire is brought out through the side opening of the needle and turned down over the plastic sleeve. The various joins and openings are then soaked in plastic cement, leads are soldered to the needle and inner wire, and the contact surfaces are chlorided by electrolysis.

This last process has been found to be of the greatest importance. If the needle-tip and side-contact are left bright, the system is extremely sensitive to streaming potentials, concentration potentials, and other sources of irrelevant potential changes. This means that, when the electrode is inserted into the brain, pulse artefacts and the like are excessively prominent, and the movement of the needle between successive recordings sets up very large and protracted potential surges.

When the surfaces are chlorided, however, the electrode can be agitated violently in saline solution without producing any potentials of the order of size of those generated by nervous tissue. When it is in the brain, perceptible movements or pulsation can take place without producing any spurious potentials. The electrochemical explanation of this effect need not be gone into here in detail. It depends on the properties of the insoluble silver chloride in contact with an electrolyte containing excess of Cl' ions (Dole 1935, Butler 1940).

The electrode and leads are sterilised either in alcohol or in formalin vapour. They cannot be boiled. The needle is marked in centimetres up to 6 cm.

A special two-channel portable amplifier and ink-writing recorder has been constructed for this type of work and will be described elsewhere (Brooks and Walter 1945). The circuit incorporates special devices to eliminate blocking of the amplifiers by large surges of potential, so that the electrode can be moved in the brain during a recording. There is also a special optical projection device to permit the surgeons to see the record and the operating field simultaneously.

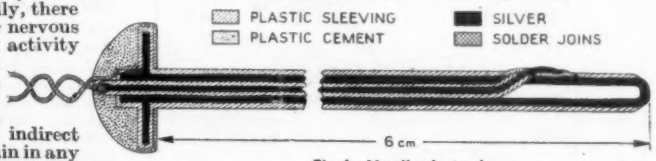

Fig. 1—Needle electrode.

The following procedure is used for recording during operations:

(1) The diathermy apparatus, suction pump, electric drills, and the like are disconnected from the mains.

(2) The operating-table and the leads to the diathermy leg pad and to the surgeon's diathermy electrode are connected to the earthed screen of the amplifier input leads.

(3) The exploring electrode is removed from alcohol and rinsed in sterile saline by the surgeon, who then passes the end of the electrode leads to an assistant. This end of the leads is now " dirty " and is clipped to an 'Anglepoise' standard.

(4) The surgeon places the electrode in a bowl of sterile normal saline.

(5) At the same time, both electrode leads are connected to the positive terminal of the low-tension accumulator in the amplifier.

(6) The surgeon dips his diathermy electrode in the bowl of saline.

The earthing procedure eliminates interference from mains hum and movements by the patient. The anglepoise standard helps to immobilise the electrode leads in the desired positions. The procedure in (4), (5), and (6) is to ensure that a fresh film of silver chloride is present on the electrode surfaces. The diathermy electrode, being earthed, is connected to the negative pole of the accumulator, thus completing the electrolysis circuit.

The electrode, being insulated except at the tip and side contact, picks up potential changes only from the tissues adjacent to these points, which are slightly less than 1 cm. apart. The needle is used by the surgeon like an ordinary brain-needle, except that at every centimetre of depth a halt is made for a few seconds' recording. Differences of consistency can of course still be appreciated.

RESULTS

The results have been clear and consistent. The appearance of the records depends on whether or not a general anæsthetic is being used. With no general anæsthetic, normal local rhythms are easily recognised even at considerable depths. The alpha rhythm, for example, has been identified 3–5 cm. below the parieto-occipital cortex, where it is still responsive to opening and closing the eyes. In other areas more complex rhythms and wave-forms are seen. The potentials are

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DR. MACCALLUM, CAPT. MILES : SUMMARY

The inoculation of blood and fæces from patients with infective hepatitis into rats on a protein-deficient diet, followed by blind passage of the tissues of these rats, has led to the production of necrosis of the liver, enlargement and/or hæmorrhage of lymph-glands, hæmorrhage in stomach and/or intestine, and hæmorrhages in the lung.

Passage, titration, neutralisation, and filtration experiments suggest that this is a transmissible disease caused by a virus.

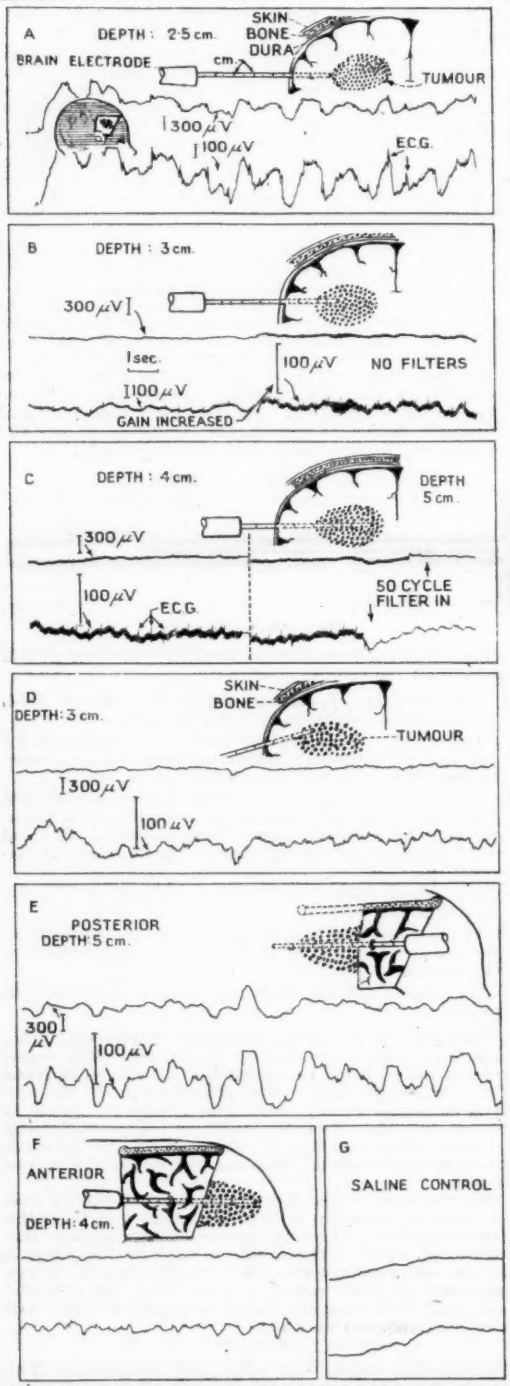

Fig. 2—Electrographic record in case 1, with electrocardiogram superimposed as check against pulsation artefacts : A, large slow delta waves indicating disturbed white matter ; B, electrode in electrically inert tissue at depth of 3 cm. ; C, electrode still in inert zone at 4 cm. ; D, electrode inserted upwards, a few rhythmic potential changes visible ; E, electrode, inserted towards back of head, has passed through inert zone and emerged into active abnormal white matter, thus delimiting inert zone ; F, electrode inserted towards frontal region and still in inert zone ; G, control record, electrode stirring normal saline, showing only slow drift of potential.

usually upwards of 100 μV. In light ether anæsthesia there is less local variation between areas ; all show an alpha-like rhythm even in the deeper layers. This is not appreciably affected by stimuli. During deeper anæsthesia large slow waves appear, as in indirect leads, again from deep as well as superficial tissue.

The range of frequencies and wave-forms from white matter appears much the same as that seen in indirect E.E.Gs. and generally regarded as characteristic of the cortex.

Discrimination between normal and abnormal nervous tissue is difficult with a general anæsthetic, but in unanæsthetised brain the approach to a pathological region is easily detected by an increase in the slower components, which become extremely large just before the electrode enters the space-occupying lesion.

Both with and without anæsthesia the difference between nervous tissue and anything else is sharp and clear. The moment the electrode enters a tumour, abscess, hæmatoma, or a ventricle, electrical activity becomes minimal. It reappears when the electrode emerges on the far side of a lesion. Electrical exploration in three dimensions can be carried out to establish the limits of the abnormal or aneural zone.

These points may be illustrated by describing four cases in greater detail.

CASE 1.—A woman, aged 25, with a history of increasing frontal headaches and drowsiness for a year. Six weeks before admission she began to vomit frequently and became giddy on standing. Examination showed bilateral papilloedema, absent knee- and arm-jerks, bilateral extensor plantar reflex, normal sensation. No ataxia. The cerebro-spinal-fluid (C.S.F.) pressure was high, but its composition was normal. Neck rigidity became well-marked, and abdominal reflexes disappeared. There were no satisfactory localising signs. The patient was semiconscious ; hence a complete neurological examination was impossible.

The indirect E.E.G. showed a large slow delta discharge in the right frontal region and moderate potential theta activity from most of the right hemisphere. This indicated a lesion involving the subcortical structures in the right fronto-temporal region (Walter and Dovey 1944, Cobb 1944).

Under a local anæsthetic a burr hole was made in the right frontal region by Mr. P. B. Ryan, the dura opened, and the brain needled for biopsy. At a depth of 4 cm. a cyst containing 7 c.cm. of yellow fluid was entered ; the brain here was resistant. A smaller cyst was tapped at a depth of 3 cm.

The following day a right frontal flap was turned down under a local anæsthetic. The dura was tense. Through a small incision the exploring electrode was inserted at right angles to the surface (fig. 2 A). At 1–3 cm. the record showed large slow delta waves indicating disturbed white matter. To provide a check against pulsation artefacts, the electrocardiogram was superimposed on the records and is seen as indicated in the figure. The large slow waves bear no relation to the pulse-rate. Both amplifier channels were connected to the electrode, but the top one was set at low and the bottom one at high amplification. In this way the range of resolution can be extended to cover from 10 microvolts to one millivolt. This accentuates the contrast between neural and aneural records, as is seen in fig. 2 B, where the electrode has entered electrically inert tissue at a depth of 3 cm. Even when the amplification is increased threefold in the lower channel, there is only a suggestion of rhythmic activity, and this is scarcely above the "noise level." There is some mains hum from the electrocardiogram injecting circuit ; this is filtered out as indicated without affecting other features of the record. In fig. 2 C the electrode is deeper in the inert zone, and again no rhythms are seen. In fig. 2 D the electrode is inserted upwards, and a few rhythmic potential changes are visible. Insertion slightly higher gave large potential changes, whereas insertion slightly lower gave none, from which the dotted outline shown in the figure could be inferred. In E the electrode has been inserted towards the back of the head and after traversing an inert zone has emerged into active but abnormal white matter, giving the limit of the inactive space. In F the electrode has been passed forwards towards the frontal pole and is still in inert tissue.

From these and many other records taken within a few minutes the extent of the aneural zone was inferred, and from the very abnormal activity all round it the probability of a rapidly expanding lesion was suggested. Fig. 2 G shows a control record obtained while a beaker of normal saline was

being stirred with the electrode. Only a slow drift of potential is seen.

The inert zone appeared to be an elongated ovoid 3 cm. thick and 7 cm. long, reaching up to 3 cm. below the surface. Further operative investigation confirmed this, but only a partial excision was possible, and the patient died some weeks later. The histopathology indicated a glioblastoma multiforme.

CASE 2.—A woman, aged 43, whose illness dated from a fall in the street six weeks before admission, with a complaint of headaches, pain over the left eye, failing memory, increasing drowsiness, and difficulty in speaking. On examination there was aphasia of a mixed type. The C.S.F. was normal in pressure but of high protein content. There was moderate papilloedema. In repose the right side of the face dropped, but active movements showed a well-marked left-sided paresis. There was some ataxia on the whole of the left side. The right leg was slightly weaker than the left.

The indirect E.E.G. showed a large slow delta rhythm in the left temporoparietal region and a moderate potential theta rhythm from both postcentral and temporal areas. This suggested a lesion involving the superficial structures in the left temporoparietal region and extending deeper into the midline basal ganglia. Under a local anæsthetic a left temporoparietal burr hole was made by Mr. P. B. Ryan. The exploring electrode was inserted in various directions.

Just below the surface (fig. 3 A) a mixture of low-voltage normal rhythms and large slow delta waves was found, as in the indirect E.E.G. This picture was retained up to 5 cm. depth, but at 4 cm. the slow rhythms were largest.

At 5 cm. all potentials were smaller, and at 6 cm. smaller still (D), but at no stage was a flat record obtained. When the needle was inserted towards the occipital pole, very large slow waves were seen at all depths, together with normal alpha rhythm, which was slightly responsive to opening and closing the eyes (E). Towards the temporal lobe the slow components were smaller, and there was considerable theta activity (F).

These observations suggested that a solid tumour mass was unlikely in the zones explored, and it was surmised that new growth was infiltrating into the white matter without destroying it. The histopathology of tissue removed from the low-voltage zones was "suggestive of an astrocytoma, possibly from the border of a glioblastoma."

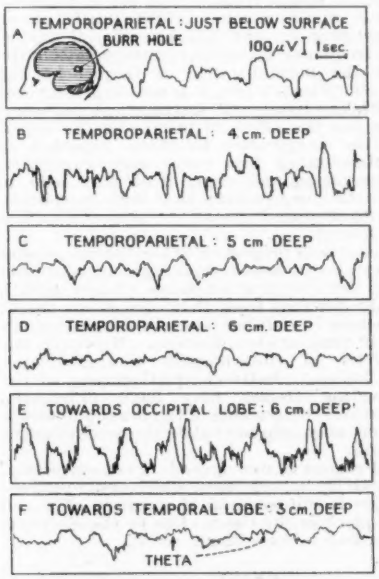
A TEMPOROPARIETAL : JUST BELOW SURFACE
BURR HOLE
100 μV
1 sec.
B TEMPOROPARIETAL : 4 cm. DEEP
C TEMPOROPARIETAL : 5 cm DEEP
D TEMPOROPARIETAL : 6 cm. DEEP
E TOWARDS OCCIPITAL LOBE : 6 cm. DEEP
F TOWARDS TEMPORAL LOBE : 3 cm. DEEP
THETA

Fig. 3—Electrographic record in case 2 : A, electrode in temporoparietal region just below the surface, mixed low-voltage normal rhythms and large slow delta waves; B, at 4 cm. deep, slow rhythms largest here; C, at 5 cm., slow rhythms becoming smaller; D, at 6 cm., slow rhythms still smaller; E, electrode inserted towards occiput, mixed waves still ; F, electrode inserted towards temporal lobe, slow waves smaller, and considerable theta activity.

The site of the lesion contra-indicated extensive resection, and the patient died 5 weeks later. Post-mortem examination was refused.

CASE 3.—A woman, aged 48, began to complain of generalised nocturnal fits in July, 1942. She was first seen in July, 1944, when the E.E.G. showed a moderate potential delta focus in the right temporal region suggestive of a space-occupying lesion. There were no neurological signs. A further E.E.G. in September, showed an increase in size and focus of the delta waves.

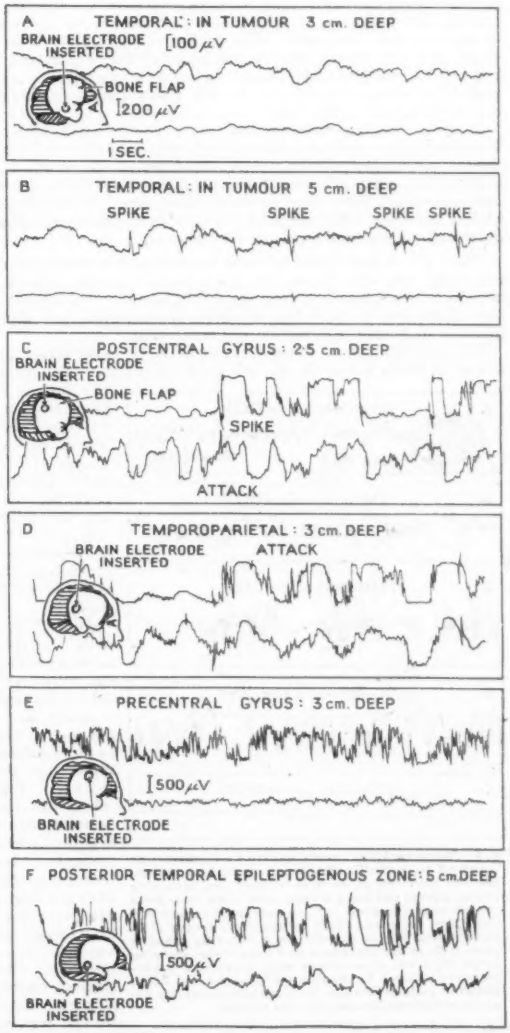

Fig. 4—Electrographic record in case 3 : A, electrode in tumour at 3 cm. deep, absence of spikes ; B, in tumour at 5 cm. deep, spikes preceding seizure ; C, in postcentral gyrus at 2·5 cm. deep, showing spike in relation to seizure ; D, in temporoparietal region at 3 cm. deep ; E, in precentral gyrus at 3 cm. deep, showing complex rhythm typical of this region and absence of spikes ; F, in posterior temporal region at 5 cm. deep, showing spikes.

On admission in December, 1944, the delta rhythm was of high potential and involved parts of the occipital and parietal lobes. There was now theta activity as well and irregularity of the alpha rhythm on the right side. These latter findings suggested that a lesion was expanding into the basal structures as well as the cortex. There were now frequent slight seizures involving the *right* side of the face and *right* arm. There were still no definite localising neurological signs. The E.E.G. suggestion of a right-sided expanding lesion was confirmed by ventriculography.

Under local anæsthesia a right lateral flap was turned down by Miss Kinloch Beck, and the exploring electrode was inserted at various positions. The records are shown in fig. 4. These are reproduced not only to show the flat records, which served again to delimit the aneural zone, but also to illustrate some of the stages in the tracing of seizure pathways, for during the recording the patient was having localised fits involving the left side of the face and left hand. Each seizure was preceded by a series of spike potentials in the temporal lobe. These were seen from a wide area in the

temporoparietal region and were particularly prominent at greater depths (fig. 4 B and F spike). They were not seen in the tumour itself (A). The precentral gyrus (area 4 of Vogt) did not participate in this activity but continued to exhibit the complex rhythms which seem to be typical of this area (E). Regions posterior to the central gyrus, however, did show seizure spikes (C).

It seems that in this case the lesion was of a particularly irritative type, and that the excitation was conducted from the frontotemporal to the postcentral regions. To study this type of phenomenon more closely it will be necessary to record simultaneously with two or more electrodes. The anterior half of the right temporal lobe was removed. Histopathology indicated a spongioblastoma multiforme.

CASE 4.—A man, aged 64, with a complaint of blindness on the right side and headaches for 5 weeks and of pins-and-needles in the right side of the chest for 2 weeks. On examination there was a right homonymous hemianopia and slight increase in tendon-reflexes on the right side.

The indirect E.E.G. showed theta activity in all areas and bursts of delta waves in the left parietal region. The alpha rhythm was large and unresponsive. These records suggested a left parieto-occipital lesion involving mainly the deeper tissues, including the visual pathways.

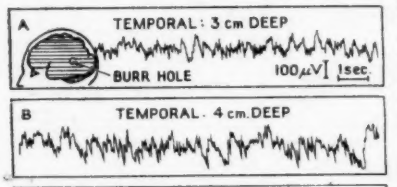

Fig. 5—Electrographic record in case 4 : A, electrode inserted to a depth of 3 cm. in temporal region, normal rhythms at various frequencies, including theta, alpha, and beta waves, with a few slow delta waves superimposed ; B, in temporal region at 4 cm. deep, delta and theta components larger ; C, in temporal region at 5 cm. deep, showing grouped spikes; D, in occipital lobe at 3·5 cm. deep, showing large rhythmic slow waves with occasional superimposed spikes ; E, in occipital lobe at 4 cm. deep, showing sudden change to complete inactivity because electrode has passed into tumour.

Direct records under local anæsthesia were obtained through a burr hole made in the left parietal region by Mr. Ryan. Fig. 5A shows the activity at a depth of 3 cm. towards the temporal lobe. Here there are normal rhythms at various frequencies, including theta, alpha, and beta waves, with a few slow delta waves superimposed. B shows the same features at 4 cm., but the delta and theta components are larger. In C at 5 cm. an area was entered where grouped spikes were the main feature. There were no clinical correlates of these discharges. In D at 3·5 cm. in the occipital lobe very large rhythmic slow waves were found, with occasional spikes superimposed on them, and this zone suddenly changed at 4 cm. to the complete inactivity shown in E, at which point the nervous tissue presumably gave place to new growth, and tissue was withdrawn from this zone for biopsy, which showed tissue suggestive of a disintegrating glioma.

The electrical signs of irritation in the temporal lobe in this case are a puzzling feature, since there was no evidence of any kind of attack.

Delimitation of pathological processes has been successful also in several cases of cerebral abscess. In such cases it is possible to distinguish between inflammation-œdema, irritation, and aneural zones, such as abscess cavities and cysts.

DISCUSSION

Electrical exploration appears to present a promising means of extending knowledge of both physiological and pathological processes in the brain. In clinical application the technique is simple enough for routine use and does not interfere with or supplant the traditional procedures.

Provided that the amplifiers and recorders are trustworthy, robust, and free from blocking delays, the time needed for exploration is only a few minutes. For some purposes a cathode-ray oscilloscope is adequate, but ink-recorders are preferable, since they enable objective successive comparison to be made, and the permanent record is produced automatically.

Simultaneous comparison of two or more zones is desirable. This is the function of the second recording channel, as well as the extension of amplitude range. The design of the exploring electrode is not ideal, and experiments with this are in progress. The needle should be 8 cm. long and more slender. The contacts can be even closer together—3–5 mm.—without losing too much in the apparent amplitude of the potential changes. It would be desirable also for the needle to be fitted with something in the nature of a trochar to permit withdrawal of tissue samples from any zone. A double-barrelled needle might be made fine enough to serve both purposes simultaneously. but a more hopeful design is to make an insulated silver wire the stylet of a fine-bore silver trochar of which all but the tip is insulated. After obtaining a record the stylet-electrode could be withdrawn and tissue sucked into the trochar. The main difficulty is the insulation of the demountable stylet-electrode, but this will be overcome as new materials become available. It is of course essential to reduce to a minimum the amount of damage done to the brain, and this implies designing round the slenderest silver tube which can accommodate a silver wire and insulator of reasonable strength.

Of the several points of general interest in these observations two should receive further careful attention. Normal white matter exhibits rhythmic electrical activity similar to, if not identical with, that generally regarded as characteristic of the cortex above it. This may help to explain why the brain should produce low-frequency rhythms at all. If the process of normal function involves rhythmic loop transmission to and from the cortex in one area and the basal ganglia, or cortex in another area, this transmission may involve a very intricate series of synaptic relays, possibly with amplification by recruitment and facilitation. On returning to the originating cell group such amplified and delayed signals would evoke a fresh set of impulses, and the process would continue rhythmically at an amplitude depending on the number of cell groups involved and a frequency depending on the delays in the loop path. If the normal range of frequencies lies between 5 and 30 cycles per sec., it is not surprising that interference with the basal and intercortical pathways by some lesion has the effect of increasing the delays and reducing the frequencies to those regarded as abnormal. Extension of this very crude hypothesis by further observation and experiment may help to explain other facts—for example, that both in epilepsy and in cases with acquired lesions the slowest rhythms tend to be the largest.

The passive electrical properties of the tissues present in the head may also be worth studying. It would not be surprising if the electrical reactance of new growth were measurably different from that of nervous tissue, since the cell picture is so different, and this might prove a further help in tumour identification. Moreover, the passive properties of the normal neuroglia and, in the case of indirect electro-encephalography of the superficial investing tissues may have differential effects on the various components of the brain potentials. Effects of this sort may help to explain the predominance of slower rhythms.

The electrical silence of new growth is not surprising, since the only activity in such tissue which could produce electrical changes is mitosis, and the chance of a cell division taking place in the tissue close to the electrode during the recording is vanishingly small.

SUMMARY

A description is given of a method for obtaining records of the electrical activity of the deeper tissues in the brain.

The method can be used to supplement conventional methods of identifying and locating subcortical tumours at operation.

The presence of a space-occupying lesion can be detected by its electrical inactivity.

Normal cerebral white matter is identifiable by rhythmic electrical activity of the same type as that found in the cortex.

White matter adjacent to a space-occupying lesion displays slow delta activity similar to that seen in the cortex in the same condition.

The spacial extent of a lesion and the zone indirectly affected by it may be delimited with satisfactory precision.

Improvements in the technique and subjects for further study are discussed.

We wish to thank Prof. F. L. Golla, director of the Burden Neurological Institute, for his advice and encouragement, Mr. P. B. Ryan, F.R.C.S., for his practical help and criticism, and the Medical Research Council for their help in defraying a part of the cost of the equipment.

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SCHISTOSOMIASIS

INTENSIVE TREATMENT WITH ANTIMONY

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A PRELIMINARY note on the intensive treatment of 6 cases of schistosomiasis with antimony has already been published (Alves 1945); in this paper a further 100 cases are discussed.

Intensive antimony therapy, like intensive arsenic therapy, is based on the work of Chargin and his collaborators (1935) who demonstrated that drugs rapidly injected intravenously might give rise to what they called "speed shock." They were, on the other hand, able to introduce comparatively large amounts of substances as toxic as histamine without difficulty, if not more than 2–3 c.cm. per minute was injected. They then applied these findings to the treatment of syphilis with large doses of arsenical preparations (Hyman et al. 1939). Their work was based on an intravenous-drip transfusion technique, which of course seriously limited the use of the method in large-scale treatment campaigns.

Eagle and Hogan (quoted by Cole et al. 1943), working on rabbit syphilis, showed that multiple syringe injections were more effective in cure than the continuous-drip technique. Their term "multiple syringe injections" implies four intravenous injections daily.

"Continuous drip" with a solution of 5% glucose-saline containing gr. 1 of sodium antimonyl tartrate per 100 c.cm. was tried in one case by Alves (1945). This solution, even when given at the slow rate of 100 c.cm. per hour, caused excruciating phlebalgia. It was obvious from a practical point of view that continuous drip with antimony salts in the treatment of schistosomiasis could not be applied on a large scale. Therefore all the cases which are discussed here have been treated by a multiple syringe-injection technique.

It is generally recognised that the present methods of treatment of schistosomiasis with antimony salts do not lend themselves to successful mass treatment on a country-wide scale. It is estimated that in Southern Rhodesia there are probably at least half a million victims of the disease, and no practical attempt has yet been made to deal with the problem of treating these cases.

MATERIAL

All the cases described in this paper are in men, mostly Africans, suffering from either urinary or intestinal schistosomiasis. They were diagnosed by a cercarial antigen intradermal test developed by one of us (W. A.) and to be described in another communication. In each case the skin-test diagnosis was confirmed by the demonstration of viable schistosome eggs in either the urine or the stool. The cases chosen for treatment were selected mainly from the Rhodesian African Rifles, a native regiment, in order that follow-up and continuous observation would be facilitated, and the chances of re-infection immediately after treatment reduced to a minimum. It should however be noted that the patients were not all "A1" soldiers, and among the incidental conditions noted were asthma, malaria, hookworm, and congestion of the lungs. These cases were treated as successfully, and apparently as safely, as the 6 already described. Each patient was weighed and medically examined on admission and a further skin-test and an eosinophil count were done. The cases are summarised in table I.

TREATMENT

Total Dosage.—The dose of sodium antimonyl tartrate (S.A.T.) has been standard throughout: 12 mg. per kg. of body-weight. This is almost equivalent to one grain per 12 lb. of body-weight, so that a person weighing 144 lb. receives a dose of gr. 12.

Division of the Dose.—In the earlier work (Alves 1945) the total dose of antimony salt was distributed in six, seven, or eight injections over a period of 2 days (30 hours). It was found that the total dose could easily be administered in six injections, and these were given at 9 A.M., 12 noon, and 3 P.M. on each of two successive days. For reasons of economy, because ampoules of the drug had to be used, the dosage was worked out to give as many doses in each course of gr. 2 or gr. 1 as possible. For example (doses in grains):

	9 A.M.	12 noon	3 P.M.	9 A.M.	12 noon	3 P.M.
Patient A: gr. 10 S.A.T. given as:	2	2	1	2	2	1
Patient B: gr. 13½ S.A.T. given as:	2	2	2½	2½	2½	2
Patient C: gr. 9½ S.A.T. given as:	2	2	1	2	1½	1

In no case was it ever found necessary to reduce the calculated dose because of untoward symptoms.

Technique of Administration.—A 10 c.cm. all-glass syringe with an eccentric nozzle was used. An American gauge 23 needle was found to be the most suitable size, for slow injection through such a bore is not difficult, whereas a larger bore needle encourages rapid injection.

As already mentioned, ampoules of the drug were used throughout, because no S.A.T. powder was available. These ampoules were made up to contain gr. 1 of S.A.T. per c.cm. of fluid. Since it would be very difficult to inject smoothly 2 c.cm. of fluid in five minutes the injection was made up to 10 c.cm. with a 5% glucose-saline solution. The small amount of glucose administered in each injection is not thought to have any detoxicating effect. The glucose-saline was dispensed in 10 c.cm. quantities in test-tubes and autoclaved for twenty minutes. It is found useful when making up the injection to affix the needle to the syringe, remove the piston from the barrel, and pour the glucose-saline into the barrel. The piston is replaced, the syringe inverted, and the air and excess glucose-saline expelled—e.g., if gr. 2 of S.A.T. is to be injected, 8 c.cm. of glucose-saline is left in the syringe; the required amount of S.A.T. solution is then drawn up through the needle in the usual way. The piston is then withdrawn slightly and the contents of the syringe are mixed by inversion. The piston is finally adjusted so that no air remains in the syringe.

A vein in the antecubital fossa is chosen and the needle inserted. It has been found that the same vein and indeed the same puncture can be used for all six injections. As soon as withdrawal of blood has shown that the needle is in the vein, the exact time is noted and the injection is begun. With the piston moving steadily, the injection is given at the rate of 2 c.cm. or less per minute. A minimum time of five minutes is therefore taken to complete the injection.

This slow and steady injection of the drug is of fundamental importance in the success of the treatment.

With practice the speed of injection can be judged accurately without the aid of a watch, but the speed of injection cannot be judged by an inexperienced worker without a watch and he invariably injects too quickly unless he times himself.

Reactions to the Treatment.—It has not been necessary in any case to discontinue or modify the treatment on

TABLE I—SUMMARY OF CASES TREATED

Case	Type of infection	Eosinophils (%)	Weight (lb.)	Total dose S.A.T. (gr.)	Follow-up two months		
					Skin-test	Gain or loss of weight (lb.)	Eosinophils (%)
1	M	1	123	10¼	−	+5½	1
2	H	3	123	10¼	−	+8	3
3	H	5	136	11½	−	+2	0·5
4	H	16	137	11½		No F-U	
5	M	1	121	10		No F-U	
6	M	3	123	10¼	−	−6	1
7	H	4	137	11½	−	+4	5
8	H	10	133	11	+	+2	5
9	H	6	127	10¾	−	+10	4
10	H	12	139	11¼	−	+2	1·5
11	H	5	150	12¼	−	−5	6
12	H	8	169	14	−	+3	3
13	..	9	82	7	−	+5½	3
14	H	4	140	11¾	−	−2	1
15	H	6	158	13	+	−6	3
16	H	21	130	11	−	0	3
17	HM	5	125	10¼	−	−3	1
18	H	5	131	11	−	+3	3
19	H	9	146	12	+	+3	13
20	H	4	132	11	−	+4	4
21	HM	16	131	11	−	+9	14
22	H	4	152	12¾	+	+1	0
23	H	12	161	13½	−	+2	5
24	HM	8	136	11½	−	+3	12
25	H	2	135	11½	−	0	4
26	M	4	155	13	−	0	1
27	H	4	143	12	−	+1	2
28	H	1	165	13¾	+	+2	1
29	H	7	162	13½	+	−6	2·5
30	H	9	132	11	+	0	6
31	HM	18	148	12¼	+	−15	10
32	H	6	116	9¼	−	−4	2
33	H	5	132	11	−	+3	8
34	H	6	154	12¾	−	+3	3
35	H	8	157	13	−	+5	0
36	H	1	135	11¼	+	+1	0
37	H	6	127	10¾	−	+4	0·5
38	H	..	139	11½	+	0	5
39	H	..	168	14	−	+2	7·5
40	H	..	124	10¼	−	+1	2·5
41	M	..	126	10½	−	−1	11
42	H	..	156	13	+	+10	0·5
43	M	..	126	10¼	+	+2	8
44	H	12	158	13	+	−4	3
45	H	4	170	14	−	−5	1
46	H	18	128	10¾		No F-U	
47	H	14	122	10	−	+3	22
48	H	6	137	11½	−	−5	4
49	H	21	162	13½	−	0	1
50	H	0	152	12¾	+	−4	1
51	H	22	148	12¾	−	+6	11
52	H	..	126	10½	−	−1	7
53	H	..	127	10¾	−	0	4
54	H	..	127	10¾	−	+1	3·5
55	H	..	137	11½	−	−2	2·5
56	H	..	123	10¼	−	+5	0·5

TABLE I—(*continued*)

Case	Type of infection	Weight (lb.)	Total dose S.A.T. (gr.)	Case	Type of infection	Weight (lb.)	Total dose S.A.T. (gr.)
57	H	134	11	79	HM	130	10¾
58	H	122	10	80	..	124	10½
59	H	136	11½	81	H	132	11
60	H	128	10¾	82	..	124	10¼
61	H	136	11½	83	HM	154	12¾
62	M	156	13	84	H	149	12¼
63	M	132	11	85	H	114	9½
64	H	156	13	86	H	125	10¼
65	H	164	13½	87	M	117	9¾
66	H	135	11¼	88	M	140	11½
67	H	145	12	89	M	136	11¼
68	H	110	9¼	90	H	148	12¼
69	H	120	10	91	H	120	10
70	H	145	12	92	H	154	12¾
71	H	132	11	93	H	138	11½
72	H	129	10¾	94	H	148	12¼
73	H	112	9¼	95	M	125	10¼
74	H	134	11	96	H	123	10¼
75	H	140	11½	97	H	162	13½
76	..	132	11	98	M	155	13
77	M	146	12¼	99	M	129	10¾
78	H	128	10¼	100	HM	118	10

H = hæmatobium. M = mansoni. F-U = follow-up.
Cases 13, 75, and 76 were Europeans ; remainder Africans.
Cases 13, 76, 80, and 82 were treated on positive skin-test only.
S. hæmatobium infections totalled 74, *S. mansoni* infections, 15, double infections 7.
Eosinophil counts before treatment in cases 75 and 76 were 15 and 8%. In remainder of cases 57–100 no eosinophil count was done and no follow-up can yet be reported.

account of severe reaction to the drug. The symptoms commonly attributed to the antimonial drugs are salivation, a hard unproductive cough, vomiting, and " rheumatic " pains ; less commonly there is constriction of the chest, abdominal cramps, or collapse. Some of these symptoms were encountered in this series (table II). Constriction of the chest was noted in one patient who had a history of asthma, and abdominal cramps were encountered in 3 cases. There were no collapses.

It will be seen from table II that coughing was much more frequent after the 1st and 2nd injections than after any other. The cough never lasted more than two minutes, and as a rule did not begin until after the injection had been completed. Salivation was often noted after the early injections but it had commonly disappeared by the second day. The table shows the number of patients who were observed vomiting soon after injection, and does not include those who may have vomited at other times. " Rheumatic " pains, especially in the shoulders, are a feature of ordinary courses of S.A.T., particularly in the second half of the course. This symptom was not encountered in our series.

In a group of 50 cases the pulse-rate was observed immediately before each injection and the average rates were as follows :

Before	1st injection	.. ..	64 per min.
,,	2nd ,,	.. ..	66 ,, ,,
,,	3rd ,,	.. ..	67 ,, ,,
,,	4th ,,	.. ..	65 ,, ,,
,,	5th ,,	.. ..	64 ,, ,,
,,	last ,,	.. ..	60 ,, ,,

These findings do not support the commonly held view that bradycardia is a frequent result of antimony treatment. Weese (quoted by Schmidt and Peter 1938) has suggested that bradycardia after potassium antimonyl tartrate is probably due to the potassium radicle, and since sodium antimonyl tartrate was used exclusively in our series we are inclined to agree that antimony in itself does not produce a bradycardia.

A brisk hæmaturia was noted in 2 cases during treatment. Specimens of urine were being collected for antimony estimations and the hæmaturia did not begin until late in the afternoon of the first day of treatment. In neither case did the hæmaturia persist, but it was sufficiently severe to reduce the hæmoglobin of one patient from 58% to 50% (Newcomer) in the course of three days.

In only one patient in the whole series was a " drug rash " observed. It appeared 24 hours after the last injection and persisted for about a week. The rash was limited to the neck and shoulders between the mandibles and the clavicles and was symmetrical in distribution.

Medical examination on the day after treatment did not in any case reveal cardiac arhythmias or other circulatory dysfunction. It was intended to do electrocardiograms on a series of these cases but war-time difficulties of supply prevented this.

A striking feature in many of our cases was the euphoric state of the patient on the day after treatment had been concluded. Africans as a rule do not fear treatment by injection, and the euphoria is hard to explain on the grounds of relief. This euphoria was also well-marked in the few European cases we treated, and we might quote the European sergeant who was due for discharge from the Army ; he played nine holes of golf the day after the completion of his course, and " threw a hectic discharge party " the next day.

Although we intended to maintain complete rest in bed for all patients for the two treatment days, this was seldom if ever honoured by the patients, who preferred to leave the ward soon after the injection and sit in the sun. They were of course excused all duties and did no work. They were however on full duty within a week of the commencement of treatment, undertaking route marches, physical training, and the other arduous activities of the Army recruit.

TESTS OF CURE

Immediate Examination of Stool and/or Urine.—As will be seen from table I most of the cases treated were *S. hæmatobium* infections, and examination of the centrifugalised deposit of urine on the day after treatment did not in any case reveal living healthy eggs. Many of the eggs seen were distorted and the miracidia were dead. When attempts were made to hatch apparently living miracidia the large majority failed to escape

from the shell. Those few miracidia which were able to rupture their shells died beside them without exhibiting the usual activity. The amount of red blood-cells and eggs in the urine varied from case to case ; some excreted large numbers while others showed few or none. No microscopic evidence of nephritis, such as casts, was found in our cases.

In the *S. mansoni* infections a similar situation is met although, of course, demonstration of eggs in the stool is an unsatisfactory business.

Later Examination of Stool and/or Urine.—Absence of eggs from the excreta two months after treatment has been used as a criterion of cure. In none of the cases examined after this period have eggs been found, and in many cases the urine is clear and shows no red blood-cells. Examination of specimens of excreta one or two weeks after treatment may reveal dead eggs but these disappear.

Cercarial Antigen Skin-test.—Since we are not entirely satisfied with a failure to demonstrate eggs as a criterion of cure we have endeavoured to assess this more accurately by employing the skin-test already mentioned. In table I it will be seen that a big proportion of our cases became "skin-test negative" at two months. This reversion from a positive to a negative skin-test is in our view indisputable evidence that death and dissolution of the schistosome worms has occurred.

Many of our patients were skin-tested with the cercarial antigen already mentioned on the afternoon before commencement of treatment. These tests reacted in the usual way in a quarter of an hour with the formation of weals and pseudopodia and had entirely disappeared next morning when the injections of antimony were begun.

At three o'clock in the afternoon of the first day of treatment—that is, six hours after treatment began—in the majority of patients who had been skin-tested an indurated button appeared which sometimes almost reached the size of the original weal. This induration persisted until the second day, after which it slowly faded. We attribute this reaction to the effect of the drug on the worm, with a consequent release of "toxin" into the tissues, and the persistence of the reaction may possibly be explained as due to the death of the worm.

TABLE II—FREQUENCY OF REACTIONS TO INJECTIONS (100 CASES)

Reaction	Injections					
	First day of treatment			Second day of treatment		
	1st	2nd	3rd	4th	5th	6th
Cough	16	10	6	3	4	2
Vomiting	..	6	2	..	3	1
"Rheumatic" pains	..	..	..	..	..	..

Weight.—It was hoped that cured cases would show an appreciable gain in weight. This has not been so. Several cases cured by all our criteria failed to show such gain. There are of course many factors other than schistosomiasis which operate against a gain in weight in the typical African patient. Malaria and hook-worm infestation are only two of the probable parasitic causes. Case 31, for instance, developed an acute attack of malaria (*P. falciparum*) the day after treatment. Most of our African patients are recruits of a few months' standing. These Africans almost universally show a large increase in weight in their first six weeks of service, a phenomenon also observed in the European recruit. Their weight then becomes more or less stabilised, any change being more often than not in a downward direction.

Eosinophil Counts.—In our experience eosinophilia is not always present in schistosomiasis. Table I shows that several normal percentages were found. Many of our patients showed a reduction in the eosinophil percentages two months after treatment, but others again showed no change, or even an increase. It should perhaps be noted here that those cases shown as low total eosinophil percentages also had low total eosinophils. Although this is not shown in the table, all the patients whose eosinophils were enumerated had full blood-counts done.

TABLE III—URINARY EXCRETION OF ANTIMONY

Case	Total dose S.A.T. (mg.)	Dose as Sb (mg.)	Urine excreted in 72 hours (c.cm.)	Sb excreted (mg.)	% Sb excreted
35	845	333	2350	61	18
36	731	288	1900	65	23
46	650	256	3210	58	23
47	682	269	3150	76	28
48	747	294	2680	66	22
49	878	346	1750	70	20
50	813	320	4190	57	18
51	796	314	2410	58	18

Three-month Follow-up of Cases Skin-test Positive at Two Months.—Out of 53 cases followed up for two months, 14 were found to give a positive skin-test reaction, and of these it was possible to examine 9 three months after treatment. At that time 3 cases showed no eggs at all in the excreta ; 6 now gave a negative reaction to the cercarial antigen ; 2 remained positive, though it was noted that the weals in these cases were smaller than previously, and the ninth previously strongly positive was now weakly positive.

URINARY EXCRETION OF ANTIMONY

In 8 cases the antimony excretion in the urine during treatment and for the day after—i.e., a total of 72 hours—was estimated (table III). It is already well established (Schmidt and Peter 1938) that by far the greater part of the antimony excreted is via the kidneys. It therefore appears that in these cases between 70% and 80% of the antimony injected remains in the body at the end of 72 hours. In the average case this amounts to about gr. 8 (520 mg.) of S.A.T. It seems to us that it is this high concentration of antimony in the tissues over this short period which is responsible for the rapid disappearance of healthy eggs and the apparent cure in all our cases.

DISCUSSION

We believe that the public health and economic implications of the method of treatment now described are even more important than its value to the individual sufferer from the disease, though to the patient this treatment offers a quicker and less disabling course with a greater probability of cure.

Mass treatment of schistosomiasis has been practised in several countries, particularly Egypt, where, by a system of mobile treatment units, complete population groups have received standard courses of antimony. The general impression seems to be that mass treatment campaigns have not proved their value, and in Egypt at least the emphasis in the control and prevention of the disease has swung over to the health educational aspect. Khalil (1924, quoted by Schmidt and Peter 1938), while admitting that the possibility of re-infection is difficult to exclude, stated that 34% of cases treated in mass campaigns relapsed. Mass treatment in any country has of course been handicapped by the necessity for keeping patients under observation and control for a month ; this period, by occupying staff and equipment limits the numbers who can be treated in a year. Rose's (1937) remarks on mass treatment campaigns are to the point : " . . . complete unanimity exists among all Egyptian specialists. No influence on the mere occurrence of the disease has been obtained by the present methods." He goes on to say that if only a quarter of those infected there could be treated yearly (that is ten times the present numbers) the results would be very different.

It will be obvious that a two-day treatment employed on mass lines will result in a huge increase in the turnover of patients and an equally large reduction in desertions and uncompleted treatments. Furthermore, if our results are achieved in a mass campaign the relapse-rate will be at worst very low.

Heretofore mass campaigns have been truly such, in that every person who can be reached is treated. This method is practicable where extremely high infection-

rates exist—e.g., Egypt and Venezuela (Scott 1942). Southern Rhodesia presents a different picture. While certain foci of high infection-rates exist, the total infection-rate of Africans is probably about 50%. In such circumstances a treatment campaign without previous diagnosis is wasteful of time and money. On the other hand, to undertake the diagnosis of each patient by stool and urine examinations would involve doubling the staff and providing expensive equipment, microscopes, centrifuges, mobile laboratories, and so on.

With the cercarial antigen skin-test we are now investigating it seems to be possible to exclude uninfected cases with certainty—that is to say, we have not encountered in several thousand tests a negative skin reaction with viable eggs in urine or stool. Since its performance and reading are speedy and require a minimum of equipment it is feasible to combine mass fast diagnosis with mass fast treatment, with no increase in staff or expense.

The economic implications are equally obvious. The intensive treatment described employs roughly half the drug used in the normal treatment. Mass treatment centres involve the feeding, housing, and policing of the patients, and it is not necessary to labour the difference between three and thirty days. We are convinced that the admission of patients to hospital for this treatment is not necessary and that the provision of such facilities as are now available at clinics and dispensaries in the native areas of this country is all that is required. African or European medical orderlies who are already capable of performing intravenous injections should be able to learn without difficulty and in a few days the "slow injection" technique which is the basis of our method.

We suggest that this intensive antimony therapy could find a place in the treatment of kala-azar, the other forms of leishmaniasis, and in filariasis.

SUMMARY

A hundred cases of schistosomiasis have been treated with a two-day treatment using sodium antimonyl tartrate with a "multiple syringe" technique.

No viable eggs were found in any case immediately after treatment or at two months and three months after treatment in the cases followed up.

In 53 cases followed up for two months the cercarial antigen skin-test had become negative in all but 14 cases (73%).

Nine of the 14 skin-test-positive cases were observed for three months and the test became negative in 6 cases in this period.

The method should much facilitate mass treatment in the control of schistosomiasis.

We are indebted to Dr. A. P. Martin, O.B.E., Medical Director, Southern Rhodesia, for permission to make this communication; to Major O. E. Jackson, S.R.M.C., and his staff, particularly S/Sgt. Stowe, S.R.M.C., for their assistance at the Rhodesian African Rifles Hospital; and to Mr. A. W. Facer, F.R.I.C., for the antimony estimations.

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ADDRESSING the Pharmaceutical Society of Great Britain on Dec. 13, Mr. C. J. Blok, chief pharmacist to the university and municipal hospitals at Amsterdam, said that about 1943 many articles became so scarce in Holland that prescribing by doctors had to be limited. Cod-liver oil could be prescribed only for tuberculosis, atropine only for Parkinsonism and eye drops, and phenobarbitone only for epilepsy. Insulin also became very scarce. In September, 1944, came the loss of gas and electricity, and operating-rooms had to resort to chemical sterilisation with 4 per cent 'Lysol,' or a mixture of borax carbolformalin with a little sodium nitrite against rusting. A very stable solution with quite effective sterilising powers was—2% formalin, 2·5% phenol, 1·5% borax.

TREATMENT OF SCHISTOSOMIASIS

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THIS paper records the results of treating schistosomiasis along somewhat unorthodox lines, the apparently good short-term results being sufficient to warrant publication. In my previous 2½ years' experience of the disease I had been disappointed by the high relapse-rate which followed antimony therapy in normal dosage and by the length of treatment of the severe cases. I accordingly determined to try the effect of a high concentration of antimony in the body over a relatively short period in an effort to kill every adult and developing schistosome. My material consisted of consecutive patients admitted with vesical schistosomiasis (*Schistosoma hæmatobium*) to a military hospital in West Africa in 6 months. All were African troops, and in no case could the immediate attack be considered a primary infestation. Cystoscopy was invariably employed for initial diagnosis and subsequent review. No control series was available, and I relied on clinical impressions of patients treated during the past 2 years, some of whom were under treatment for 2 or 3 months, and of the patients admitted who had relapsed after orthodox treatment elsewhere.

TREATMENT

Sodium antimony tartrate was not used, for we usually had adequate stocks of two other antimony preparations whose toxcity was believed to be lower. Either stibophen B.P. (B.W.CO.) or 'Anthiomaline' (M.&B.) was used throughout, but owing to temporary difficulties of supply 5 patients who began with stibophen had to conclude their course of treatment with anthiomaline. The principle of dosage was to give a maximum dose of antimony (nearly 0·5 g.) in less than a fortnight; hence a course of anthiomaline consisted of daily injections (Sundays excepted) of 4 c.cm. intramuscularly for a fortnight (total antimony 0·46 g.), while stibophen was similarly administered in 5 c.cm. doses (Sat. and Sun. excepted; total antimony 0·49 g.). All treatment was carried out in hospital, and during the 2nd week patients were encouraged to stay in bed; a hexamine mixture was given throughout, and patients with severe superadded staphylococcal cystitis received sulphathiazole 2 g. daily for 7 days.

Cystoscopy was performed before treatment, a week after the last injection (when the patient commonly returned to duty), and thereafter three times at monthly intervals, so far as could be arranged. For a case to be considered cured we insisted on examination 3 months after treatment to show a bladder free from all tubercles, ulcers, and granulations, though we accepted a minor degree of trigonitis as inevitable in a country where urethritis is the rule rather than the exception; unfortunately this ideal was often not achieved owing to administrative difficulties, and of necessity I established a class of "presumed cured" patients, in whom the last cystoscopy had shown a virtually normal bladder, and in whom no clinical relapse was reported. Late relapses of this disease have been reported, the latent period being measured in years rather than months, but I have had no opportunity of observing cases for this length of time.

COMPLICATIONS

I was particularly anxious to observe any complications that might arise as a result of the uniformly concentrated dosage used, regardless of body-weight, in adult males weighing 7–11 stone. Toxic effects were noted in 5 patients, all of them undeveloped adolescents whose "Army age" was alleged to be 18, and it was concluded that these complications could readily be eliminated by making dosage proportional to body-weight. In 3 of these cases vomiting started in the 2nd week, and reduction of dosage was required in one undersized youth who brought up five large round-worms; 2 other patients developed irritating coughs, which led in one case to a small hæmoptysis. In none of these, nor in any of the other patients who often appeared listless towards the end of treatment, was there any ill effect apparent a week after the end of the course.

RESULTS

During the 6-months period under review 57 cases of vesical schistosomiasis were admitted to hospital, but 11 are excluded owing to failure to complete treatment for various reasons unconnected with this disease. The accompanying table shows that 42 out of 46 patients returned to duty in their original medical categories, with results which were sufficiently satisfactory to themselves and their medical officers for many of them not to respond regularly to demands for follow up.

RESULTS OF TREATMENT

Result	No. of patients treated with—			Total
	Anthiomaline	Stibophen	Stibophen + anthiomaline	
Cured	9	8	0	17
Presumed cured	14	6	5	25
Not cured ..	3	1	0	4
Total ..	26	15	5	46

ILLUSTRATIVE CASE-RECORD

CASE 1.—A soldier, whose reputed age was 18, had had hæmaturia at intervals since childhood, and had recently developed severe dysuria. Urine contained many ova of *S. hæmatobium* and was sterile on culture. Cystoscopy on April 14, 1944, showed extremely severe infestation, with many recent tubercles superimposed on old ulcers and massive granulations, chiefly basal, both ureteric orifices being involved. Routine course of anthiomaline 48 c.cm started. Cystoscopy on May 5 showed almost unbelievable improvement: one large papilloma on the right wall and a few patches of granulations in the posterior part were the only evidence of disease. Patient was discharged from hospital. Cystoscopy on June 9 showed papilloma smaller and avascular, rest of bladder normal. Follow-up cystoscopy on Sept. 22 showed a small avascular elevation at the site of the old papilloma.

This case demonstrates the rapid return to normal of a severely diseased bladder when the causal parasite is killed; the removal of the papilloma could doubtless have been accelerated by diathermy.

Failures.—In 4 patients the routine treatment did not raise their medical category and make them fit for duty, and a review of these throws light on the pathology. In no case was the patient left with active infestation.

CASE 2.—A particularly severe case with gross basal ulceration of the bladder had already received several small doses of anthiomaline at irregular intervals: after a full concentrated course of the same drug progress was apparently excellent, until a small new crop of tubercles appeared outside the right ureteric orifice at the end of the 2nd month; a full course of stibophen was given, and a 3-month cure resulted.

CASE 3.—A case of moderate severity, affecting almost the entire bladder, healed satisfactorily with stibophen, but a month later a new crop of tubercles appeared, and a course of anthiomaline was given, with no further relapse in 3 months.

CASE 4.—A severe case, with many ulcers and gross vesical spasm, improved under anthiomaline; but the bladder remained contracted, with a maximal capacity of 5 oz., and the soldier was invalided out of the Army.

CASE 5.—A chronic case of long duration was apparently cured by anthiomaline but developed a severe staphylococcal cystitis; this relapsed 3 times; and, although the schistosomiasis remained cured, the patient was finally invalided out of the Service.

CONCLUSIONS

It seems right to conclude that both anthiomaline and stibophen will cure over 90% of cases of vesical schistosomiasis of any degree of chronicity, provided that the drug is given in concentrated dosage. Since the parasite cannot multiply in the body, any relapse (less than 5% in our series) will be due to one or more adult worms which have resisted the first course, and it may safely be treated with the alternative drug; late relapses are not excluded but are considered improbable.

SUMMARY

Treatment of 46 cases of infestation with *Schistosoma hæmatobium* in West African troops is described, with a 3-months follow-up period.

Anthiomaline and stibophen appear equally satisfactory, if used in a dosage which approaches toxicity.

Cystoscopic control throughout is essential.

I wish to thank Lieut.-Colonel N. L. Shepperd, R.A.M.C., for his invaluable advice and stimulation; Miss S. Murphy, Q.A.I.M.N.S., for her skill in nursing and controlling a most difficult ward of patients; and Colonel K. Fletcher-Barrett, for permission to publish.

LARGE MISSILE LODGED IN THE FACE
WITH MINOR CLINICAL DISTURBANCE

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THE following case presents several bizarre and unusual features.

A gunner arrived as a walking case at a maxillofacial unit in the B.L.A., some 8 hours after injury, complaining of a small laceration on the left cheek and some stiffness of the lower jaw. His impression was that he had been hit by a Spandau bullet, but he did not think it had penetrated.

Examination showed a ragged vertical laceration on the left cheek about 1 in. long and 1 in. in front of the left ear. The left side of the face was swollen but not grossly so. There was malocclusion of the teeth, the mandible being swung to the right. The maxillary block was firm. No other abnormality was noticed inside the mouth, and there had been no bleeding from mouth or nose.

A tentative diagnosis of a fracture of the left condyle or left ascending ramus of the mandible was made and radiography ordered. The resulting film (fig. 1) surprised even the

Fig. 1—Postero-anterior radiogram of face, showing size of missile and its position. The lateral view showed it to be lying at a level just behind the maxilla and in front of the ear.

radiographer, who thought the foreign body was an unexploded cannon-shell. Our own knowledge of ballistics being also very slight, operation was started with considerable misgivings.

Operation.—The foreign body was easily localised through the entry wound and was very gingerly removed. It proved, however, to be non-explosive and solid and was later identified as a 20-mm. cannon-shell. It measured 85 mm. in length and weighed 147·3 g. The wound track passed inwards and slightly backwards; through the coronoid process of the mandible, which was fractured, as was also the condyle (fig. 2); behind the maxilla into the nasopharynx. The maxillary antrum was not involved.

After removal of the cannon-shell no bleeding took place from the cavity, which was powdered with penicillin and sulphathiazole. The skin wound was trimmed and completely sutured. Temporary intermaxillary fixation of the

jaws was provided by two pairs of eyelet wires. These were later replaced by cast metal cap splints incorporating a guiding flange (Major L. M. Irwin, Army Dental Corps).

Postoperative Course.—No postoperative complications were expected in this case, since the wound cavity appeared to have good drainage into the nasopharynx. The left side of the face remained swollen, however, although the skin wound healed soundly, and 8 days after operation definite fluctuation could be felt. A small incision was therefore made through the wound scar, and drainage was provided. There was no pus in the wound, but some bloodstained serous fluid escaped. This proved later to be saliva, and a brisk salivary fistula developed. The missile probably damaged either the parotid duct or part of the parotid gland. The patient was evacuated to U.K. 12 days after operation, well, except for the salivary fistula, which may require further treatment.

Fig. 2—Diagram showing injury to mandible.

COMMENT

The most interesting points in this case seem to be (1) the large size of the missile, the first of its kind we have seen; and (2) the fact that such a mass of metal could be accommodated in a compact vital structure like the face and cause so little disability. There is probably no other site in the face, except the oral cavity, where this could have happened.

My thanks are due to the Director-General of Army Medical Services and to Major FitzGibbon, O.C. of the unit, for permission to publish the case; and to Major Irwin who carried out the dental work.

DETERMINATION OF PATHOGENICITY OF TUBERCLE BACILLI BY THEIR INTERMEDIATE METABOLISM

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THE intermediate metabolism of the tubercle bacillus has been studied by Dieckmann and Mohr (1933), Loebel et al. (1933), Nakamura (1938), and Bernheim (1941). The Warburg technique was used for measuring the oxygen consumption of the bacilli in the presence of different metabolites. Bernheim made the interesting observation that benzoates and salicylates much increased the oxygen uptake, and he suggested that substances of similar chemical constitution may play a rôle in the normal cellular metabolism of the bacilli.

Using an attenuated bovine strain—the Calmette (B.C.G.) strain—I have not been able to find any increase in oxygen consumption in the presence of salicylates or benzoates. Since the B.C.G. strain was grown on Souton's synthetic medium, and not on beef and glycerol infusion broth as was the case with Bernheim's strains, this medium was also used for the B.C.G. strain in the present experiment, but salicylates and benzoates still had no effect. Bernheim used both the Bovine B_1 strain isolated at Saranac Lake and the human H–37 strain, so it was evident that my failure could not be attributed to a difference in the metabolism of bovine and human strains. However, both these strains are pathogenic, whereas the B.C.G. strain is nonpathogenic. I therefore investigated a pathogenic human strain kindly supplied by Dr. A. Wassén of the bacteriological laboratory of the Sahlgrenska Hospital. An increase in oxygen consumption by 72–157% was found in the presence of sodium salicylates. The findings in a typical experiment with this strain as well as with the B.C.G. strain are shown in figs. 1 and 2.

The experimental conditions were as follows:

With a platinum spiral (1 cm. diameter) 6–8 loopsful of the bacilli from cultures 2–16 weeks old were suspended in 10 c.cm. of sterile 0·9% NaCl solution, centrifuged, and washed once or twice with 20 c.cm. of saline. The mass of the bacilli was homogenised in a mortar with about 20 c.cm. of *M*/15 Sörensen's phosphate buffer solution (pH 6·8). The Warburg vessels (15–18 c.cm) contained 2 c.cm. of the suspension of bacilli, 0·1 c.cm. of 0·1 *M* sodium salicylate (to be added from the side cup), and phosphate buffer to make a total volume of 3 c.cm.; 0·2 c.cm. of 5% KOH was placed in the well. Temp. 37·5° C. Frequency of shaking 80–90 times per min.; amplitude ± 2 cm.; atmosphere, air. The salicylate was added either at once or after an interval of 1–3 hours. The dry weight of the bacilli was determined after the experiment and ranged from 2 to 15 mg. in the different experiments. The solutions and vessels were sterile. To detect possible contamination with other bacteria a beef infusion broth was used. Contaminated vessels were not taken into account (figs. 1 and 2).

Further experiments were made to determine whether the difference found was characteristic only for the two strains investigated or if it was a general difference in metabolism between pathogenic and nonpathogenic strains. Some different strains were kindly supplied by Prof. G. Olin of the State bacteriological laboratory in Stockholm. Pathogenic and nonpathogenic strains, human and bovine, were represented. A strain was accepted as pathogenic if guineapigs were killed by a subcutaneous injection of 10^{-6} mg. of bacilli. With a nonpathogenic strain guineapigs survived a subcutaneous injection of 10 mg. of bacilli. The results are given in the table.

It will be seen that pathogenic strains, human as well as bovine, grown either on Souton's medium or on glycerol infusion broth, all show a positive salicylate effect (increased O_2-uptake), whereas the nonpathogenic strains are negative (no change in oxygen uptake).

The negative result with nonpathogenic strains does not seem to be due to the impermeability of the capsule for salicylates since the same results were obtained with bacilli ground in a mortar with sand or glass powder. The failure to oxidise salicylates and benzoates is therefore due to a lack of enzymes or to some associated factor.

When the culture was so old that no oxygen uptake took place, the salicylate effect was abolished. The correlation between the salicylate effect and the pathogenicity of tubercle bacilli of different ages is now under investigation.

So far as the experiments permit one to draw conclusions, a difference in metabolism exists between pathogenic and nonpathogenic strains of the tubercle bacillus as shown in the oxygen uptake in the presence of salicylates. The same difference, though less definite, could be demonstrated with benzoates.

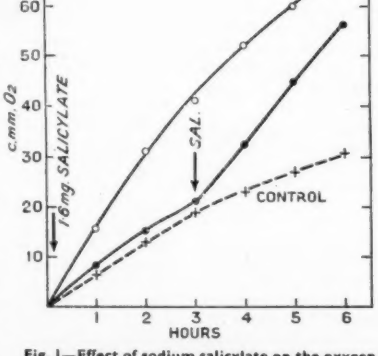

Fig. 1—Effect of sodium salicylate on the oxygen uptake of a pathogenic human strain of the tubercle bacillus (H.W.). Positive salicylate effect.

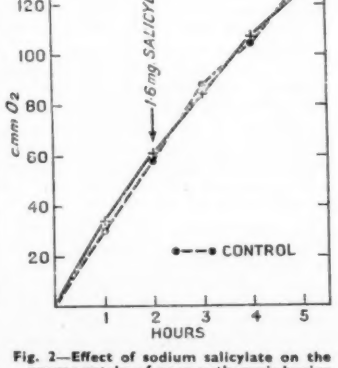

Fig. 2—Effect of sodium salicylate on the oxygen uptake of a non-pathogenic bovine strain of the tubercle bacillus (B.C.G.). No salicylate effect.

EFFECT OF 1·6 MG. SODIUM SALICYLATE ON THE OXYGEN UPTAKE OF DIFFERENT PATHOGENIC AND NONPATHOGENIC HUMAN AND BOVINE STRAINS OF THE TUBERCLE BACILLUS

Strain	Pathogenicity	Bovine or human strain	Culture medium	Age of culture (weeks)	Salicylate effect. Increase in O_2%
H.W.	Path.	Human	Glyc. broth	5–6	72–157
H.W.	Path.	Human	Souton	3	82
H_2	Path.	Human	Souton	12	90
K_2	Path.	Bovine	Glyc. broth	12	38
R	Nonpath.	Human	Souton	12	0*
R	Nonpath.	Human	Glyc. broth	16	0
102	Nonpath.	Human	Glyc. broth	2–7	0
B.C.G.	Nonpath.	Bovine	Glyc. broth	2–3	0
B.C.G.	Nonpath.	Bovine	Souton	2–6	0

* Within the limits of about ± 5%.

It cannot as yet be decided whether benzoates and salicylates act as catalysers or as metabolites. If the latter is the case it must be assumed that the pathogenic strains can open the benzene ring in these compounds.

The differences found seem to open up new pathways for studying the biochemistry of the pathogenicity of the tubercle bacillus.

On the basis of the stimulative effect of benzoates and salicylates more than 50 derivatives of these substances were investigated for their inhibitory effect on the growth of tubercle bacilli (competitive enzyme inhibition). Preliminary results of these experiments—bacteriological as well as clinical—are presented in an accompanying paper (Lehmann 1946) with special regard to *p*-aminosalicylic acid as the most effective inhibitor.

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Preliminary Communication

PARA-AMINOSALICYLIC ACID IN THE TREATMENT OF TUBERCULOSIS

IN 1940 Bernheim [1] showed that salicylic (2-hydroxybenzoic) acid and benzoic acid increase the oxygen consumption and carbon-dioxide production of the tubercle bacillus, whereas the homologues 3- and 4-hydroxybenzoic acid were inactive. It was concluded that salicylic and benzoic acids were oxidised as metabolites and that similar chemical configurations possibly play a part in the metabolism of the bacillus.

On the basis of these experiments I have investigated more than 50 derivatives of benzoic acid with the purpose of finding a substance possessing bacteriostatic properties against the tubercle bacillus. The substances were synthesised by K. G. Rosdahl, of Ferrosan Co., Malmö. An attenuated bovine strain (B.C.G.) grown on Souton's medium was used for the experiments. The substances investigated were added to the medium in concentrations from 10^{-2} to 10^{-6} mol. The area, or the dry weight, of the bacilli was determined when the surface of the control flasks (100 ml. medium in 250 ml. flasks) was covered with a somewhat packed film of the bacilli—i.e., after 12–20 days.

The most active substance found was 4-aminosalicylic acid (*p*-aminosalicylic acid) producing an inhibition of 50–75% in a concentration of 10^{-3} mol. (1 in 650,000 or 0·15 mg. per 100 c.cm.). The bacteriostatic effect was completely abolished if the amino group was placed in position 3 or 5, or if its place was taken by NO_2. Substitutions in the 4-amino group (by CH_3 or stearic acid) reduced the bacteriostatic effect only slightly or not at all. If the hydroxy group in the 2- position was replaced by CH_3 activity was retained, but not if it was replaced by NH_2 or Cl. Substitutions in the hydroxy group decreased the activity considerably. If the hydroxy group was placed in position 3 instead of 2 the effect was diminished. If the carboxy group was replaced by a sulphonic acid group the activity was abolished. Substitutions in the carboxy group (methyl, ethyl, and furfuranylanhydride) changed the activity only slightly. Double molecules of 4-aminosalicylic acid linked together at position 3 were as effective as 4-aminosalicylic acid but highly toxic to animals.

Animal experiments showed that 4-aminosalicylic acid was not toxic to rats when given for 1–2 months in a concentration of 5% in a synthetic food. A blood concentration of 3–7 mg. of free aminosalicylic acid per 100 c.cm. was found when analysed by Ehrlich's dimethylaminobenzaldehyde reagent. Guineapigs were more sensitive as they showed a decrease in appetite and in growth. No changes in the blood-cells or hæmoglobin were observed either in the rats or in the guineapigs. The substance could be administered by mouth, subcutaneously, intramuscularly, or intravenously. The treatment of experimental tuberculosis in guineapigs and rats is in progress.

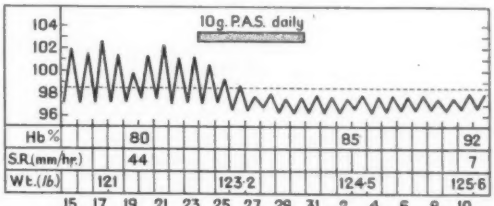

Fig. 1—Chart in case 1, showing effect of third course of *para*-aminosalicylic acid.

Clinical trial.—The treatment of tuberculosis in man was started parallel with the animal experiments. Tuberculous abscesses after thoracoplasty up to 50–60 ml. in volume have been treated daily with a neutral 10% solution of *p*-aminosalicylic acid and showed healing after some months even when they had remained unchanged for 3–6 months before treatment. It has been given by mouth to 20 patients since March, 1944, at the Renstroemska Sanatorium in Gothenburg (Superintendent Dr. G. Vallentin). A blood concentration of 2–7 mg. per 100 c.cm. was achieved by giving 10–15 g. a day. Periods of 8 days' treatment were followed by free intervals of 8 days. It is too early to follow up the results. In many cases, however, a prompt fall in temperature—temporary or permanent—coincided with the periods of treatment and was accompanied by improvement in the patient's general condition as indicated by a gain in appetite and weight, an increase in the red cells and hæmoglobin and a decrease in the erythrocyte sedimentation-rate.

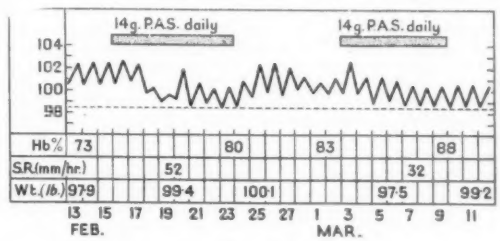

Fig. 2—Chart in case 2.

Two illustrative cases follow.

CASE 1.—A woman, aged 24. Onset of tuberculosis in May–June, 1944. X-ray examination on July 3, 1944, showed an acute general dissemination of cloudy processes in both lungs. Remittent fever 97·5°–101·5° F from July 3 to Nov. 26, when treatment with *p*-aminosalicylic acid (P.A.S.) was given in three periods with concomitant falls in temperature; the last period is illustrated in fig. 1. Normal temperature has been maintained up to the present since this

1. Bernheim, F. *Science*, 1940, **92**, 204.

treatment. Artificial pneumothorax instituted on March 7, 1945, on the right side for an apical cavity ½–1 in. in diameter.

CASE 2.—A man, aged 35. Bilateral pleural effusion; onset June, 1944. Guineapig test positive on the exudate from both sides. No manifest tuberculosis in the lungs. P.A.S. treatment started Feb. 16, 1945, followed by general improvement (fig. 2). Gain in weight 15½ lb. in two months.

None of the usual effects of salicylates (sweats, ear symptoms) were observed even with a high dosage of *p*-aminosalicylic acid (15 g. daily). The fall in temperature was therefore thought not to be due to a salicylate effect.

The work here recorded was done at the Sahlgrenska Hospital, at the Research Laboratories of the Ferrosan Co. at Malmö, and at the Renstroemska Sanatorium, Gothenburg.

JÖRGEN LEHMANN,
Sahlgrenska Hospital, Gothenburg, Sweden.

Medical Societies

ROYAL SOCIETY OF TROPICAL MEDICINE AND HYGIENE

AT a meeting of the society on Dec. 13 with Dr. C. M. WENYON, F.R.S., the president, in the chair, a discussion on the

Teaching of Tropical Medicine

was opened by Dr. L. E. NAPIER, who said that in the United States of America a serious attempt is being made both to improve the teaching of the subject to the undergraduate and also to develop its postgraduate teaching. In Great Britain, however, tropical medicine appears to have been relegated to the place of a specialty about which the general practitioner need know nothing and with which the ordinary student need not be burdened. These shortcomings require remedying urgently. To avoid overloading the undergraduate curriculum the student should be introduced in his premedical years to selected parasites of man, and the essential clinical diagnostic methods used in tropical medicine should be included in the teaching of clinical pathology. This would leave the pathology, symptomatology, and therapeutics of important tropical diseases to be taught in the systematic lectures on medicine and in the clinical departments as the occasion arose. At this stage it seems entirely wrong to segregate tropical medicine as it has been segregated in the past and to teach the student virtually nothing of the pathology, symptomatology, and therapeutics of tropical diseases. Tropical diseases furthermore could provide excellent examples for teaching the general principles of preventive medicine. Scarcity of clinical material must not be used as an excuse for avoiding clinical teaching; the student of general medicine fails to see examples of many diseases which he will be expected to diagnose and treat later in his practice. Much can be done by the use of lantern slides and cinema films. The future will also bring an increasing number of tropical diseases among those whom the war has taken to the tropics, while rapid air transport may allow cases of tropical disease to enter the country unsuspected during the incubation period. Interest in tropical medicine must be fostered by all means. Short-term exchanges of personnel, research-workers, and teachers between this country and the tropics should be encouraged. As an artificial way of maintaining interest in tropical diseases examining bodies should demand a sound knowledge of the commoner tropical diseases. Turning to postgraduate teaching Dr. Napier said there are few if any places in the world where one can see a better selection of tropical diseases than in London, but owing to the war there is at present no suitable hospital where the available clinical material can be collected; a crying need today is for a "tropical medical centre." Special provision should be made for those who are proposing to specialise in tropical hygiene. Dr. Napier ended by emphasising the necessity for making the undergraduate and his teachers conscious of the existence of tropical diseases, and for the early establishment of a hospital in London that would act as a centre for teaching and research in tropical medicine; meanwhile the society should prepare a memorandum on the teaching of tropical medicine and try to obtain representation on all committees considering the matter.

Sir PHILIP MANSON-BAHR thought that the medical student's burdens should be not increased, but agreed that more emphasis should be laid in the premedical studies on the parasites associated with disease in man. He disagreed with the statement that tropical medicine is entirely neglected in the present undergraduate curriculum, pointing out that in practically every medical school in London lectures on tropical diseases are already given to the undergraduate, and that in the examinations of the last few years questions on the more important diseases have always been included. In the postgraduate courses it is also necessary to avoid overloading the curriculum. The best days of teaching tropical medicine were those when the tropical school was a compact self-contained unit, with the laboratory and clinical work closely linked; a plethora of visiting lecturers, however specialised their knowledge, leads to overlapping and overloading of the curriculum. In teaching tropical medicine differential diagnosis is most important, and the practical value of microscopy cannot be overstressed. Any difficulty of obtaining clinical material would largely be overcome if the general hospitals were more willing to transfer tropical cases to a tropical hospital for teaching purposes.

Prof. R. M. GORDON also agreed that the course in zoology should include the simpler parasitology of man, and that the teaching of tropical medicine should be extended, especially in the undergraduate's final year. The graduate student would then require an amplification of his general knowledge, and such teaching would be well covered by the present D.T.M. & H. course, which does not make a specialist but only a good practitioner for the tropics. He did not believe that the situation in which tropical medicine finds itself in London now that the war is over necessarily means that the subject is in danger throughout the country; the Liverpool School flourished during the war and is confident of its own future. The dearth of living material in this country for the teaching of parasitology and entomology necessitates the artificial maintenance of strains. This involves much labour, and loss of a strain is a disaster unless it is maintained in more than one place; some institution, such as the Wellcome Laboratories of Tropical Medicine, should interest itself in this matter. The Colonial Office and all firms operating in the tropics should insist on a diploma in tropical medicine for their medical officers.

Dr. G. MACDONALD supported broadening the undergraduate curriculum to include more instruction in tropical medicine. He did not admit that the teaching of tropical medicine in London is in a parlous state, but he urged the restoration of facilities lost directly owing to the war and deplored that, outside the special group of those intimately concerned with tropical medicine, interest in the subject has been lost, even the writers of the Goodenough report failing to consider the matter seriously. There must be a centre of clinical research in London to replace that lost in the war, but on a better and more fully equipped scale, and it should coöperate with the existing School of Tropical Medicine as now constituted. Postgraduate teaching in tropical medicine should round off a general medical education and fit the student to practise medicine in the tropics, rather than create a specialist; the specialist requires, in addition to special knowledge of tropical diseases, a high qualification in general clinical medicine. Similarly those specialising in tropical hygiene should hold a D.P.H. as a basis, supplemented by a D.T.M. & H. and experience overseas before taking up independent work in tropical hygiene. The society should form a policy committee to examine and foster the development, teaching, and standards required in tropical medicine and hygiene.

Lieut.-Colonel VERE HODGE, while agreeing that the establishment of an Imperial centre for tropical medicine should be the ultimate object, thought that immediate steps are required to deal with the large numbers of repatriates who may be returning with latent tropical infections; after a long absence from home these persons will not want to be sequestrated in special centres, and this will necessitate a number of tropical units throughout the country. The limitations of teaching tropical medicine in this country will make it necessary to have subsidiary centres abroad, but even short courses in this country would give practitioners going abroad an advantage. Three types of teaching in tropical medicine are

required—first, undergraduate training; secondly, short courses for those going abroad for the first time; and thirdly, diploma courses for those who already have some experience in the tropics.

Lieut.-Colonel W. R. M. DREW thought that undergraduate teaching in London has always been well balanced; ordinary students have a good grounding in tropical parasitology and the Conjoint Board examinations always include one question on tropical diseases. Early in the war the D.G.A.M.S. approached the deans of the various medical schools, as a result of which special emphasis has been given to instruction in tropical medicine, and voluntary courses have also been given. In addition a hundred short courses for the Services have been held at Millbank. In any curriculum a proper balance of subjects is necessary. The centralisation of cases should offer no difficulty.

Dr. H. S. STANNUS suggested that, taking into account the rapidity of modern transport and the proposed development of the Colonies, regional centres should be established in the tropics to which students, after a preliminary education in this country, could go for further instruction before practising in the respective regions. There should also be interchanges of teachers between this country and the tropics.

Dr. H. C. TROWELL agreed with Dr. Stannus and remarked that general principles of medicine are more important than special practice, since the most important and lethal diseases even in the tropics are the cosmopolitan diseases.

Sir RICKARD CHRISTOPHERS, F.R.S., strongly supported the suggestion for the re-establishment of a tropical centre in London.

ROYAL SOCIETY OF MEDICINE

AT a meeting of the section of psychiatry on Dec. 11, with Dr. G. W. B. JAMES in the chair, a discussion on the

Importance of Diet in Mental Illness

was opened by Dr. W. REES THOMAS. After stressing the importance of the diet as part of the doctor's prescription in the treatment of mental patients, he enlarged on the difficulty of providing a varied diet in a mental hospital, where the stimulus of outside meals, open to the general population, is entirely lacking. Nevertheless, mental hospital diet has greatly improved in the last 30 years. There were a fair number of cases of vitamin deficiencies in British mental hospitals before the last war, but an investigation carried out with Professor Sydenstricker in 1942 revealed very few. Just as the population as a whole lost weight during the first part of the present war, so the average weight of mental patients fell also. Thus 77–78% of patients lost weight during the 1939–41 period (on the average about 0·5 stone), as compared with the peace-time figure of about 45%. The caloric value of the food during the early war period also dropped from 3000 to 2680 daily; after 1941 the caloric content of the diet rose to 2800, and a subsequent investigation revealed a return to the peace-time figure for weight loss. The annual death-rates present a similar picture—68 per 1000 for 1935–39, 91 per 1000 for 1941, and again 68 per 1000 for 1944. In the last war there was an increase in the death-rate right through the war, culminating in a figure of 207 per 1000 for 1918; this was followed by a fall immediately after the war. Dr. Rees Thomas suggested that the more favourable figures for this war were primarily due to a better diet, and he recalled that the food was blamed as the chief detrimental factor by the Commission on Diet in Mental Hospitals after the last war. The actual dietaries in about two-thirds of the mental hospitals in the country have recently been assessed from the issue books of the clerks and stewards, since actual intake values are impossible to obtain. It was found that 68% of the patients received a diet containing 2360 calories; the rest received supplements either because of the work they did or for reasons of physical illness. In Dr. Rees Thomas's opinion a diet containing 2500 calories is adequate for the mental hospitals in view of the age and activity of their population. The diet in a mental hospital can now be maintained at a reasonable level without great difficulty, thanks to the efforts of the Ministry of Health and the Ministry of Food.

Dr. H. E. MAGEE said that the Medical Research Council committee on special diets, which advises the Ministry of Food on invalid rations, has not recommended any special priorities for mental patients as such. Mental hospitals can, however, obtain an extra allowance of fish like other hospitals. The requirement of the mental patient will vary with the amount of muscular exercise he takes as well as with the nature of his condition. Thus melancholic types require considerably less than excitable ones. The beneficial effect of food and especially of frequent snacks during the air-raids taught us that mental excitement and tension demand a high-calorie diet. Under the present rationing system—it is possible to provide a diet containing 3000 calories for men and 2200 for women, provided intelligent use is made of point foods and the rationed foods are supplemented with unrationed foods such as bread and potatoes. Unrationed foods provide a good deal of protein; this protein is mostly of vegetable origin, but there is no evidence that animal protein is indispensable for adult man. It is sometimes said that war-time diets, especially in hospitals, are too starchy, but a person getting sufficient calories from the rationed and unrationed foods available can scarcely avoid eating enough protein, as well as vitamins and minerals, in his diet: our war-time food policy was so planned. In liberated Europe frank deficiency disease has been strikingly rare, but progressive asthenia, apathy, listlessness, lack of attention to personal hygiene, and lack of interest in the surroundings are general. Insufficient food blunts the desire to live, while adequate feeding tends to restore it. The lesson for psychiatry of this observation is obvious. In conclusion, Dr. Magee mentioned the observations made in a mental hospital in Paris in 1942–43 by Randoin. There 2877 calories were consumed daily and the annual death-rate was 10% before the war. In 1941–42 the calorie intake fell to 1750 and the annual death-rate rose to 21%. The patients lost up to 5 kg. in 6 months, but when in 1943 the diet was increased by 25% the losses in weight were restored in 6 months.

Prof. J. R. MARRACK maintained that the requirement for calories is greatly overestimated. He himself can lead a very active life on 2300 calories daily. For the mental-hospital patient 2400 calories is quite enough. With regard to vitamin C it is very difficult to get more than 20 mg. per day in the diet, and most people probably get less, because foods rich in vitamin C, such as mustard and cress, are very bulky. Raw vegetables are difficult to eat for people with bad teeth. Vitamin C is especially poor in restaurant meals. White bread is deficient in vitamin B_1, but fortification may be dangerous by upsetting the balance of B vitamins in the diet. Prof. Marrack asked whether mental patients are more susceptible to B deficiencies than other people; this may be the reason for the higher standards of Williams, arrived at on the basis of experiments with mental patients.

Dr. S. W. HARDWICK discussed the cases of pellagra he has seen during recent years and pointed out that this disease can easily be missed in hospital patients. He emphasised the importance of acute nicotinic acid deficiency psychoses of the Cleckley-Sydenstricker type.

Dr. JOSIAH OLDFIELD discussed the digestive powers of the organism in relation to the availabity of nutrients. He was not impressed by arguments based on the monotony of diets, since horses and other animals thrive on monotonous diets.

Dr. ROLF STRÖM-OLSEN discussed the administrative difficulties in the provision of an adequate and varied diet in mental hospitals, and mentioned a dramatic outbreak of scurvy (36 cases) at his hospital.

Dr. P. ELLINGER said that the position with regard to diet and pellagra seems rather confused, and discussed some of the aspects of this problem in the light of recent discoveries on the biosynthesis of nicotinic acid in the human gut. A comparatively simple test is now available for the assessment of the nicotinic acid status of patients.

Mr. R. BENESCH discussed the pathogenesis of pellagra and vitamin deficiencies in general from the point of view of the availability of these factors to the human body, as distinct from the dietary content. He analysed the reasons for the relative frequency of vitamin deficiencies in mental hospitals in the light of vitamin synthesis and destruction in the gut and the influence of diet, infections, and therapeutic preparations thereon.

The CHAIRMAN wound up the meeting by appealing for an increased number of dietitians in mental hospitals.

Reviews of Books

Rehabilitating the Tuberculous

F. R. G. HEAF, M.A., M.D. Camb., M.R.C.P., senior medical officer, L.C.C., consulting physician to Papworth Village Settlement and to the British Legion Village Sanatoria; J. B. MCDOUGALL, C.B.E., M.D. Glasg., medical director, British Legion Village Sanatoria; Nayland, Essex, and Douglas House, Hampshire. (Faber. Pp. 142. 8s. 6d.)

Pathways in Aftercare

A verbatim report of a discussion on aftercare and reablement for tuberculous patients. (National Association for the Prevention of Tuberculosis. Pp. 37. 5s.)

BOTH these publications help to solve the major problem of tuberculosis—the patient's livelihood after he leaves the sanatorium. Both proclaim that "rehabilitation should be considered as an essential part of the treatment of tuberculous persons."

Dr. Heaf is a senior medical officer of the London County Council and consulting physician to both Papworth and Preston Hall; Dr. McDougall, for many years medical director of Preston Hall, has recently undertaken in addition the direction of Nayland in Essex and Douglas House in Bournemouth. These two authors therefore have wide experience and know exactly what they are talking about. They present their observations lucidly and convincingly, and it is heartening to learn how much has been, and is still being, accomplished at village settlements such as they describe. As their patients near the end of their sanatorium treatment, their tolerance for exertion is assessed and tested on a suitable productive job which earns them real wages; as their tolerance increases, their industrial wage-earning value increases pari passu until they are self-supporting. Living in the village settlement they and their families (and it has been proved that they can rear perfectly healthy children) remain under constant medical supervision. At the slightest suspicion of deterioration in health, they are encouraged to lie up. Far from promoting hypochondriasis, this watchfulness creates confidence, and the "lie-ups" are amazingly rare—a matter of a few weeks in about as many years. The income level of the workers appears to be as high as in industry elsewhere. At Preston Hall in 1944–45 the wages and salaries earned by ex-patients living in the village amounted to £25,000, and the gross annual turnover of the industrial section came to about £300,000.

But these village settlements are few, and can only accommodate patients from neighbouring areas or those willing to migrate from their native locality, leaving friends, neighbours, climate, scenery, and patois behind. Is the solution to the problem of reablement a multiplicity of village settlements throughout the land? Or can the man who recovers from tuberculosis be absorbed safely and economically into industry and remain under domiciliary supervision in his own home? The second volume, *Pathways in Aftercare*, is a verbatim report of a discussion on this very point. The group was assembled at the invitation of the N.A.P.T. under the chairmanship of Dr. Heaf and was attended by a large number of industrial managers, representatives of local authorities, tuberculosis officers, and welfare workers, many of whom took part in a realistic and illuminating debate. Naturally enough no final solution was reached, but the speeches leave no doubt that the problem of fitting the tuberculous patient into the right job in the right way is being tackled more wholeheartedly now than ever before.

No sanatorium physician, tuberculosis officer, or local authority can afford to miss reading these two books.

Traitement chirurgical de l'arthrite sèche de la hanche

L. TAVERNIER, professor of the practice of pædiatric surgery and orthopædics; Ch. GODINOT, director of the Clinic of Lyons University. (Masson. Pp. 360. Frs. 150).

Professor Tavernier gives his records of 108 patients with osteoarthritis of the hip on whom he has operated in the last twenty-five years. He has tried to relieve pain by limiting the hip movement by arthrodesis, then later by arthroplasty, insertion of metal cups, remodelling of the head of the femur, and removal of osteophytes. In 1930 he first tried the operation of *forage du col*, and in 1934 he tried section of the branches of the obturator nerve which supply the hip-joint. His technique is based on the anatomical researches of his assistant Truchet. He claims that 58 patients have been treated successfully by simple section of the articular branches. Sometimes, although the pain radiating to the anterior and medial aspect of the limb was relieved, pain in the lower back and outer aspect of the thigh persisted. This area proved to be supplied by a branch of the sciatic nerve, and section of this branch relieved pain. Since 1942 he has operated on 23 patients with a high proportion of success: they not only were relieved of pain, but they moved more easily and there was improvement in the X-ray appearance of the joint.

This small book describes in detail the evolution of the methods employed by a thoughtful surgeon. It is worth reading for its sincerity, clarity, and logic.

Applied Physiology

(8th ed.) SAMSON WRIGHT, M.D. Lond., F.R.C.P., John Astor professor of physiology, University of London. (Oxford University Press. Pp. xxx + 944. 30s.)

THIS edition has been expanded by 150 pages and as many illustrations. The reader is exhorted to make intelligent use of the latter, and is shown in an appendix how to do so. Other pictures have been improved, and the man in chapter v with dermatographia has joined the Merchant Navy, proclaiming in blistering capitals "There'll always be an England." These changes and their like are good, and the way in which the text has been brought up to date is praiseworthy. An instance, to which attention is not drawn in the preface, is the section on the spleen, in which the illustrations are admirable and the treatment more coherent than before. There is a wealth of fact about human physiology, and a good system of cross-references. The book is an admirable and logically constructed compendium of what the student or physician needs to remember and understand of his physiology. A great deal more can be obtained from it by study than is apparent at a first reading. We miss with regret Solomon's advice to the too credulous reader which used to salt the fly-leaf. To substitute observations on how a textbook should be, and how it usually is, written is doubtful wisdom. As a prematurely immortalised epigram[1] says, "The printed page is not the truth nailed down, but the author." We can approve what is revealed of this author and his businesslike approach to the subject, without perhaps wishing that all books were written in the same way.

Voluntary Health Agencies

An Interpretative Study. SELSKAR M. GUNN; PHILIP S. PLATT, with a foreword by LOUIS I. DUBLIN, PH.D. (Ronald Press Co. Pp. 364. $3.)

THIS book presents the results of an inquiry, beginning in 1941 and extending over 3½ years, into the work of the numerous voluntary health agencies in the United States. It was undertaken on the initiative of Mr. Louis I. Dublin by a committee, of which he became chairman, appointed by the National Health Council with the financial support of the Rockefeller Foundation; and its object was to find out what the respective agencies were doing, how they were doing it, what were their problems and difficulties, and what their achievements—especially in relation to their expenditure. The agencies, which were so defined as to exclude hospitals and clinics, numbered about 20,000, and the inquiry was the first attempt to give a comprehensive view of their activities. It shows, broadly, that though much important and valuable work in being done by voluntary health associations in America, "the time is ripe for stocktaking." There is, it is stated, need for improved organisation, for advances in leadership and technical direction and adaptation to changing requirements, and for more coördination of effort especially with the work of the official health authorities. To help in the attainment of these objectives the authors give much practical advice, which, being founded on long experience of health administration, should be useful both to members of the governing bodies of health agencies and to their administrative staffs. The book, written with a light touch, is remarkably readable, and may confidently be recommended to those engaged in voluntary health work in this country.

1. Fabing, H., Marr, R. Fischerisms. Springfield. A private print.

Vitamin therapy in Nervous disorders

Condition	*Vitamin or Vitamins indicated*	*Dosage*	*Preparations available*
PERIPHERAL NEURITIS, of the symmetrical type occurring in **Pregnancy** (1) **Diabetes** (2) **Alcoholism** (3) and usually affecting the lower limbs. Also some cases of **Sciatic Pain,** not referable to joint disease or trauma.	**Vitamin B_1** (Aneurin hydrochloride)	**For severe cases.** 25-50 mg., intramuscularly, twice daily until symptoms are relieved ; then 3 to 9 mg. daily by mouth. **For less severe cases.** 1 to 3 mg. three times daily by mouth. With high doses, a preparation containing the other factors of the B complex should be given with the diet to prevent imbalance (4)	Vitamin B_1 Ampoules. Vitamins Ltd. Supplied in strengths of 10, 25, and 100 mg. Vitamin B_1 Tablets. Vitamins Ltd. Strengths 1 mg. 3 mg. Bemax. Supplies the factors of the Vitamin B complex in natural proportions.
ANOREXIA FATIGUE INSOMNIA A syndrome frequently indicating a subnormal dietary intake of Vitamin B_1 or the B_2 complex (5)	**Vitamin B_1** **The B_2 Complex.**	1 to 3 mg. Aneurin hydrochloride by mouth, three times daily. Dietary supplementation by foods containing the B_2 complex in high natural concentration, such as Bemax.	Vitamin B_1 Tablets. Vitamins Ltd. Strengths 1 mg. 3 mg. Bemax.
PSYCHOPATHIC CONDITIONS, especially Depression, when associated with Dermatitis and Diarrhœa (6)	**Nicotinic Acid.** **Nicotinic Acid Amide.**	50 mg. every 2-4 hours.	Nicotinic Acid Tablets. Vitamins Ltd. Strength 50 mg.
NEURO MUSCULAR DISORDERS. The Muscular Dystrophies and Amyotrophic Lateral Sclerosis (7) (8)	**Vitamin B_6** (Pyridoxin) with **Vitamin E** (*a*-tocopherol)	The dosage in these conditions is still under trial, but treatment must be maintained continuously for prolonged periods if any benefit is to be obtained. Recent work suggests that in addition to the vitamins named, the substance, INOSITOL, present in certain foodstuffs, is essential for the utilisation of VITAMIN E.	Pyridoxin. Vitamins Ltd. Ampoules 50 mg. Tablets 10 mg. Fertilol. Vitamins Ltd. (Wheat germ oil.) Capsules 3 mg. *a*-tocopherol (Vitamin E). Bemax. (Contains Inositol.)

References :

(1) J.A.M.A. (1938), **110**, 1665.
(2) J.A.M.A. (1940), **115**, 1973.
(3) J.A.M.A. (1938), **110**, 414.
(4) B.M.J. March 31 (1945).
(5) J. Am. Diet. Ass. (1941), **17**, 5.
(6) J.A.M.A. (1938), **111**, 58 4.
(7) *Lancet* (1940), **1**, 10.
(8) *Science* (1945), **101**, 93.

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THE LANCET

LONDON: SATURDAY, JANUARY 5, 1946

"Direction"

"Doctors should, like other workers, be free to choose the form, place, and type of work they prefer, without Government or other direction."

So runs the sixth of the series of "principles" formulated by the Negotiating Committee as a yardstick against which the proposals for a National Health Service are to be judged. Prof. J. A. RYLE in last week's *British Medical Journal* takes exception to this criterion, which he regards as claiming "the right to perpetuate a state of affairs in which the underprivileged and under-doctored sections of the community must remain inadequately served." He argues that "there is no other answer to the problem of distribution of doctors than some measure of direction." One could wish, however, that he had given an indication of the form and extent which he thinks the measure of direction will need to take. For this word "direction"—loosely used, and used in advance of any exact knowledge of the Minister's intentions—is fast becoming a rod with which to belabour all proposals which involve any form of planned change in the geographical distribution of practitioners. Yet everyone admits that the present distribution is unfair and is conditioned rather by economic opportunity than by clinical need. The country has been promised a medical service available to every citizen who cares to use it, wherever he may reside. Moreover, an appreciable part of the cost of this service is likely to be met by direct weekly contributions from every family purse. No Government setting up such a service could evade the responsibility of ensuring that every part of the country shall receive its appropriate share of the available medical care and skill. It is not enough to say that the remedy is to increase the number of doctors unless at the same time some method is devised to ensure that the doctors are employed where they are most needed. This problem needs to be solved, and instead of confining ourselves to destructive criticism we should consider what solution would promote a better distribution without encroaching unduly on our present habits.

What is lacking in the areas at present "under-doctored"? Certainly they are in no way the healthiest localities. They could easily fill with useful work the days of many more practitioners than they now employ. But hitherto the remuneration they have been able to offer has been insufficient unless the doctor has been prepared to undertake the care of an undesirably large number of patients; nor have they offered good conditions for working, for living, or for bringing up a family. Given time, all this could under a National Health Service be materially changed. Financially the situation might improve very quickly. Once the Government takes responsibility for providing a medical service for all the people, there should be an end of underpaid or unpaid service to the poor, and of bad debts, and a satisfactory income should be attainable without the doctor attempting anywhere the care of an excessively large practice. Unattractive working conditions should also disappear as soon as modern health centres can be provided with good equipment and full ancillary assistance. It will not be so easy to meet the competition of the more favoured localities in the provision of good housing, educational, cultural, and recreational facilities, but compensations might be offered in the form of longer holidays, more frequent study leave, and perhaps earlier retirement. A National Health Service should also be always willing to facilitate the transfer, after some years' work, of any doctor who wants to move to another area.

But although the disadvantages of the under-doctored areas could thus be mitigated, and practitioners could be attracted to places now unpopular, it might be many years before the full effect of these changes would be felt; and we have to face the question whether any further steps could acceptably be taken to encourage an earlier redistribution. This term does not of course mean the movement of established practitioners from a place well supplied with doctors to one not so well supplied. So drastic a step, interfering, as it would, with countless doctor-patient relationships, has never anywhere been seriously suggested. Even in the white-paper, in the passage which first raised this controversy and led to the charge that the Government was seeking to direct medical labour, it was laid down that "there will be no interference with the right of a doctor to go on practising where he is now, and to take part in the public service in that area." It is in the interest of our patients that we should insist that there shall be no repudiation and no whittling down of this right; but we must also recognise that in the case of doctors newly coming into practice the position is different. The white-paper went on to say: "but an unrestricted right to any doctor to enter any new practice and there to claim public remuneration, at his own discretion, would make it impossible to fulfil the new undertaking to assure a service for all." Because of this, powers were suggested for the Central Medical Board which would have made it necessary for "any practitioner wishing to set up a new—or take over an existing—public service practice in a particular area to seek the consent of the Board."

This proposal was regarded by many of us as reasonable, but its object might perhaps be attained more comfortably. Instead of requiring all doctors who wish to enter new practice to apply for permission, it should be sufficient to designate from time to time areas (probably not numerous) which are held to be more than sufficiently supplied with doctors, and to ask only that doctors wanting to enter these areas should make out a good case in favour of their doing so—e.g., for reasons of health, or the desire to succeed to a family practice. Such partial "freezing" of certain areas that are well supplied with doctors, might without undue hardship modify distribution in the way required. Would the doctors whose choice was thus curtailed think that they were being "directed" as to where they should practice? We believe not. Experience shows that members of the profession do not in these matters make unreasonable demands. It is true that up to now, they have, like other workers, been free, in time of peace, from all

Government direction, when choosing their type or place of work. On the other hand they have, again like other workers, always been subject to a form of economic direction. They have had to find work where work was available. A doctor may have wished to settle, say, at Taunton, but finding no suitable practice on offer he may quite cheerfully have accepted another at Bristol, if the practice, the house, or the partners there attracted him. It is not likely to have occurred to him that he had been "directed" to Bristol by the inability or unwillingness of the doctors of Taunton to make room for him in their town: he has recognised that in Taunton at the moment there was no demand for an extra doctor, and he has looked elsewhere. Had he not wished to go to Bristol, there were many other localities from which to choose, and there is no reason why under a National Health Service he should not still have a wide range of choice and avoid any sense of being "directed."

If in the interest of an improved service we can consent to such a conception as this, we shall be in a stronger position to resist the two things we all steadfastly desire to avoid—an initial posting, or a subsequent transfer, of a doctor anywhere, regardless of his wishes. Were such posting or transfer proposed, it really would merit the name of direction. We believe—and we hope Professor RYLE will agree—that under the arrangements here suggested all measure of direction could and should be avoided.

Carried Forward

THE year 1945 ended in the defervescence of war and a dress parade of cheerful statistics about the nation's health. The Ministry of Health report[1] a striking improvement in maternal mortality and in the whole range of infant deaths, including stillbirths and even neonatal rates. In the year ended March 31, 1945, the general death-rate achieved a new low record, and the birth-rate climbed up to 18 for the first time in nineteen years. For the third year in succession there was a substantial decrease in diphtheria, both cases and deaths, the deaths having fallen below 1000 for the first time in our history. It is true that there are shadows over the landscape—notably tuberculosis and venereal disease—but the broad general picture drawn at the end of a long devastating war is encouraging. To the Ministry of Health, long trained in habits of caution, these bright statistics

> "Do take a sober colouring from an eye
> That hath kept watch o'er man's mortality."

In other words, they answer:

1. Don't assume that the favourable trend will continue.
2. Don't attach too much significance to records of a single year.
3. These statistics, good as they are for the fifth year of a bitter war, are not good enough. They can and must be made better.
4. Look at the vast amount of ill health which limits and handicaps the daily lives of the workers—during an average quarter six out of every ten civilians of working age suffered from an illness (not necessarily keeping them away from work) or complained of a minor ailment of some kind.

In spite of these and other salutary cautions we might be justified in telling the world that we have a credit balance in our public-health account. The real question is how we are to maintain it during the years ahead. It all boils down, you will say, to full employment, better distribution of wealth and of nourishing food, and so on; you will have more difficulty in adding "better housing" because we have been worse housed during the war, in Southern England at any rate; yet the improvement has been as great there as anywhere.

In some directions the roads to improvement are clearly marked. The general notification of venereal diseases, with effective early treatment under ideal conditions (such as one finds in Chicago), would be a good beginning. In the attack on tuberculosis the immediate problem is to provide prompt institutional treatment for all who need it. The most urgent difficulty is lack of nursing and domestic staff; for that reason the number of beds for the tuberculous actually fell by 650 during the year 1944–45. But ultimately the campaign must be directed towards prevention and early detection of the disease. For detection the introduction of mass radiography offers good prospects. Prevention brings in the far wider issues of housing and poverty; but public education has an immense part to play, and we have not yet travelled very far along that highway. Although periodic variations in the incidence and virulence of infectious diseases are well recognised, there is no reason to doubt that our intensive campaign of immunisation against diphtheria has been effective. We must make unremitting efforts to develop and improve our methods, with all the earnestness of a mission and all the skill of modern publicity. Great scientific advances in immunisation are just round the corner.

When we turn from specific diseases and examine the current records of health, there is some conflict of evidence about the speed, and even the direction, of progress. The enlightened policy of the Ministry of Food, on the advice of men of science, went far to prevent deterioration in our nutrition during the war. How are we to hold fast, when controls are removed? YUDKIN and others point out that in many families war-time increases in wages have not kept pace with the rise in the cost of living, and that the poorer families show a higher incidence of nutritional deficiencies. TITMUSS went further by demonstrating that the lower-income groups are *relatively* poorer today than they were a generation ago—that is, the gap between wealth and poverty is wider—although all classes have shared in the general decline in mortality. He also made it clear that the major causes of this increasing divergence were casualties of environment. The same tendency can be observed in the United States. Its correction requires our constant vigilance. From the medical point of view this means that we must continue to undertake scientific surveys of the health, food, and income of the various groups and be ready to urge State intervention before harm is done.

The birth-rate was steady or increasing up to 1876, when the figure of 36·6 per thousand was reached; since then there has been an almost uninterrupted decline, and the gross fertility of British women has fallen by about 60% in half a century. The death-rate reached its unenviable height about 200 years ago, at about 47, and has since declined fairly steadily to below 12 per 1000 of the population.

1. Summary Report of the Ministry of Health for the year ended March 31, 1945. See *Lancet*, Dec. 29, 1945, p. 856.

These figures are sufficiently accurate to allow us to discuss the meaning of the change. In the earlier period one of the chief causes of the great increase in population was the rise of modern medicine, both preventive and curative. The present age has witnessed another great revolution in medical treatment, and full credit should be given to the sulphonamides and penicillin, to blood-transfusion and modern surgical techniques. A large number of killing diseases have been themselves disabled.

Much of the ill health that plagues us is no doubt due to fatigue and nervous strain—and no wonder. The remedy lies in shorter hours of work and less sense of rush. "Everyone is in motion," TOCQUEVILLE said; "some in quest of power, others of gain. In the midst of this universal tumult, this incessant conflict of jarring interests, this continual striving of men after fortune, where is the calm to be found which is necessary for the deeper combinations of the intellect? How can the mind dwell upon any single point when everything whirls around it, and man himself is swept and beaten onwards by the heady current that rolls all things in its course?" There is need for personal as well as national peace. And perhaps men and women can learn to smoke less and drink less alcohol, now that the war is over. When TITMUSS demonstrated that the lower-income groups are relatively worse off today, and that the causes of this widening gulf are mainly environmental, he was stating a truth that is often overlooked. The mighty tide of sanitary improvement which has been flowing for two generations has not yet reached the very poor. A good water-supply is of benefit only when it can be turned on, hot or cold, inside a house; modern drainage is a blessing only when the sanitary fittings are not the common property of several families; and milk remains wholesome only when it can be kept in a cool place. The list might be multiplied until the evils of the slum are described in all their ghastly detail. But housing alone is not enough. The slum is the outward expression of poverty and ignorance. Any real effort to make a healthy nation must provide houses, but it must also attack the deeper problems, of poverty by economic action, and of ignorance by education; or it is of no avail.

Intensive Treatment of Bilharziasis

THE specific treatment of human schistosomiasis dates from the independent announcements by MCDONAGH and by CHRISTOPHERSON, in 1915 and in 1917, of the lethal action of antimony on the causative intravascular parasites. They first successfully treated cases of blood-fluke infestation with tartar-emetic solutions given intravenously. Since then both potassium antimony tartrate and sodium antimony tartrate have been extensively employed, and these drugs are today still generally held to be the most potent available for the treatment of human bilharziasis. The accepted maximum single dose of either, for an adult, has been about 2 grains; and this dose has been repeated not more frequently than on alternate days, until a total of about gr. 30 of the selected drug has been reached. The full course of treatment extended over about three weeks. In addition to the length of the course it has disadvantages which are attributable to the very toxic and extremely irritant nature of the compounds. It is usual to begin with a small dose (gr. $\frac{1}{4}$) and to increase slowly until the full dose is reached, when it is repeated for the requisite number of injections. With each injection toxic side-effects, such as a feeling of constriction in the chest, spasmodic cough, vomiting, pains (especially in the shoulders), cramps, and sometimes collapse due to a fall in blood-pressure, are encountered; these may be severe and distressing and occur while the solution is actually being introduced. The solution of the drug must be freshly prepared immediately before use, since it becomes more toxic on standing, and it must be given with the utmost care into the vein, without any leakage around the site of injection, or distressingly painful necrosis going on to actual gangrene may result. It is thus evident that the administration of tartar emetic over some weeks is not lightly to be undertaken.

The pentavalent antimonials have proved ineffective in the treatment of schistosomiasis; and before the trivalent antimonial compounds were introduced the only alternative to tartar emetic was the alkaloid emetine, which proved useful in cases where intravenous injections could not be given, or where the patient was highly intolerant to antimony. In 1929 the organic trivalent antimony preparation, 'Fouadin' (stibophen), was found to be effective in the human schistosomiases. This drug, which contains 13% of antimony, is put up in solution in ampoules, and is non-irritant and relatively non-toxic. It is stable in solution, and the contents of a 5 c.cm. ampoule can be injected intramuscularly or intravenously without undue inconvenience to the recipient, and the dose can be repeated at shorter intervals than considered advisable with tartar-emetic solutions. In this issue MILLS records his treatment of *Schistosoma hæmatobium* infestations in West Africans with stibophen (B.P.) and with 'Anthiomaline' (M.&B.), a lithium salt of antimony. Each drug was given intramuscularly for six days each week over a period of a fortnight. Such courses have been successfully employed by many workers, and MILLS records 42 cures in the 46 cases he treated and was able adequately to observe for a reasonable period afterwards.

Some months ago ALVES[1] in a preliminary note reported the successful treatment of a few cases of schistosomiasis with full doses of sodium antimony tartrate frequently repeated within a period of only two days. Now he and BLAIR record in detail the similar treatment of 100 cases of *S. hæmatobium* and *S. mansoni* infections in natives of Southern Rhodesia. Their therapeutic results are excellent, and the absence of toxic side-effects, with a proper technique of injection, is remarkable. What is even more striking is the dramatic shortening of the period necessary for adequate curative treatment, with its bearing on the mass treatment of the populations of the schistosomiasis endemic and hyperendemic areas. Mass treatment of any large community is complicated not only by the number of skilled personnel required, and the amount of energy, time, and money that must be expended, but by the reluctance of the average person to continue any long course of treatment to the end. This characteristic is not confined to the backward peasant inhabitants of Africa and Asia but is daily seen in their more educated

1. Alves, W. *S. Afr. med. J.* 1945, **19**, 171.

Caucasian brethren. A successful two-day course of intensive treatment for a chronic and uncomfortable disease may well appeal to a primitive population and can the more readily be enforced where compulsion is necessary. If only from this aspect the results of ALVES and BLAIR are an important contribution to the welfare of the native inhabitants of the schistosomiasis endemic areas throughout Africa and Asia.

Clinician and Scientist

THE regius chair of physic in the ancient University of Cambridge was founded in 1540. For four centuries it has been held by a succession of physicians. Some, such as WINTERTON and WARD, were preeminently scholars. Some, such as GLISSON, were original investigators. Almost all were men whose training and whose life-work were in the practice of medicine; they were, in the modern term, clinicians. In the twenty-second appointment to the office this old tradition has been broken. Sir LIONEL WHITBY is but an occasional visitor to the bedside; his practice, tastes, training, and original work have been in the scientific, rather than in the clinical field. It is not surprising then that he devoted his inaugural address on Dec. 5 to the familiar but baffling task of describing the relation of the science to the art of medicine.[1] He had no difficulty in impressing his hearers with the immense contribution of medically useful knowledge that science has made. His apt review of chemotherapy, stretching from the empirical discoveries of quinine, mercury, and antiscorbutics, through EHRLICH's dogged search for the "magic bullets" that his scientific imagination believed must exist, down to the modern stories of the sulphonamides and penicillin, was a reminder of the speed at which human intellectual activity is altering man's relation to his environment; yet it dealt with only one limited field of scientific inquiry in relation to medicine. Beyond its contribution of useful knowledge, however, science can influence the practice of medicine by affecting the physician's way of thinking in his daily approach to patients and clinical problems. How far it does so, how much further it ought to do so, and what are the hindrances; these are the difficult questions.

Anyone familiar with the atmosphere of our teaching hospitals must recognise that the clinician's habit of thought and that of the laboratory worker are not alike. Sometimes they differ so much that discussion between them becomes futile and antipathy is engendered. The laboratory worker loses patience with the clinician's ignorance and unwillingness to learn, his woolly-mindedness and credulity. The clinician concedes the laboratory worker's precision, but is irked by his narrow outlook and hint of intellectual superiority. Yet both, for generations, have been trained in the same scientific laboratories, of chemistry and physics, anatomy and physiology. Why is it that, twenty or thirty years later, they cannot talk the same scientific language? The answer is that they do not appreciate the limitations, as well as the possibilities, of the application of scientific thinking to clinical medicine. The scientist asks his questions, plans and performs his experiments, and may or may not get his answers; if he does not solve his problem, he postpones it, or abandons it, disappointed but not discredited; new knowledge or new technique may bring the solution later on, or perhaps it was not worth solving. To the clinician, on the other hand, every patient is an urgent problem; none can be abandoned or postponed. Some decision must be taken and acted on, however scanty the knowledge on which it can be based. Being obliged, so often, to act without precise indications of how to act readily blunts the logic of all but the sharpest intellects. This common experience is an explanation, though it need not be taken as an excuse, for imprecision in the clinical mind. A second and more fundamental difference in ways of thinking arises out of the infinite variety of patients and the problems they present. WHITBY recognised this in saying, "it is true that medicine will never be an exact science, because the normal variations in individuals have such a wide range that automatic and mechanical treatment is prohibited." The scientist seeks generalisations, at all stages, from the simple classifications of natural history to the comprehensive "laws of nature"; his experiment gives him no satisfaction unless he knows he can repeat it and obtain an identical result. The physician's goal is the restoration or preservation of the individual's health, and every success is satisfying although it may be unique; with him the generalisations are a means but not an end. We cannot therefore expect or desire that clinician and scientist should think along identical lines or talk quite the same language. But that need not imply antagonism. WHITBY was right and opportune in saying again that "the welding of art and science will make for good medicine." It must come through a mutual recognition, by clinician and scientist, of the differences in their background and in the nature of their tasks, and a mutual respect for the contribution each can make to the problems of innumerable bedsides.

1. The address will be published by the Cambridge University Press.

New Year Honours

THE first major list of honours to be issued since the end of the war is concerned almost entirely with contributions to victory. No such list can include more than a representative sample of the many men and women who have shown exceptional ability, endurance, or devotion: for every person honoured in war, there must be twenty, fifty, or a hundred equally deserving in their own way. But the fact that relatively few are chosen need not and should not reduce our pleasure at their recognition. It is in fact a great pleasure to see among the new knights the names of so many men long honoured by their colleagues—among the surgeons Fairbank, Gordon-Taylor, Max Page, W. H. Ogilvie, Stanford Cade, and Henry Wade; among the physicians A. M. H. Gray, R. A. Rowlands, A. W. Stott, and C. P. Symonds; and a bacteriologist of the distinction of Paul Fildes. The outstanding success of Sir Alexander Hood as director-general of Army Medical Services brings him promotion to G.B.E., while other administrators raised to knighthood include J. B. Hance, director-general of the Indian Medical Service, and R. B. Ainsworth, director of medical services of the Red Cross Joint War Organisation. Outside the strict confines of medicine we are glad to note that Prof. A. V. Hill, F.R.S., becomes a Companion of Honour. In the hospital world Lord Southwood, chairman of Great Ormond Street Hospital, is created a viscount, and Mr. Philip Inman, chairman of Charing Cross Hospital, becomes a baron. A supplementary list will be published shortly. Meanwhile, at the beginning of a New Year of better hopes, all of us will gratefully congratulate those members of our profession named on p. 30.

Annotations

NEW REMEDY FOR LUPUS

In 1943 Dr. G. B. Dowling at St. Thomas's Hospital began to treat lupus vulgaris with large doses of calciferol (vitamin D_2) by mouth. At meetings held by the section of dermatology of the Royal Society of Medicine in the past two months he and Dr. E. W. Prosser Thomas of the same hospital have described remarkable results obtained in some of the 38 cases so far treated in this way, 16 of which have been followed for more than a year. Some of them had previously had X-ray therapy, and in these it has been harder to judge the response to the new remedy; but Dr. Dowling thinks it fair to say that all have improved under calciferol, and in a dozen the lesions seem to have entirely disappeared. In one patient there has been no return of the disease in the 18 months since treatment stopped; and though a few have shown little benefit, the majority have been strikingly improved by calciferol when they had made poor progress with other remedies. Members of the dermatological section, who saw some of the cases, were much impressed; and it was pointed out that the new form of treatment is far simpler and less expensive in time and effort than current methods such as frequent exposure to Finsen light or ultraviolet rays. On the other hand it has the disadvantage of employing doses which border on the toxic, and at least 8 patients have shown signs of intolerance such as nausea, loss of appetite, and depression. Most of these, though not all, were receiving 150,000 international units of calciferol daily, and in all of these symptoms of intolerance disappeared when the dosage was reduced to 100,000 I.U. Unlike the natural vitamin D_3, obtained from fish-liver oils, calciferol is prepared artificially by irradiating a vegetable sterol, ergosterol, and preparations may include other toxic by-products of irradiation. Very large doses are known to cause deposition of calcium in soft tissues—notably the renal tubules and arterioles and the media of large blood-vessels—and though this abnormal calcification tends to disappear on discontinuing the use of calciferol, dosage on the scale used by Dowling and Prosser Thomas for lupus should not be employed without carefully considering the individual case and keeping a watch for toxic symptoms. This aspect of the subject is discussed more fully in the report of the November meeting to be published in the December issue of the *Proceedings of the Royal Society of Medicine*, now in the press. The meeting held on Dec. 20 will be reported in a later issue of the society's proceedings.

ORGANISERS AND THE GROWTH OF BONE

By publishing short reviews of recent papers, *Nature* is doing its best to bring us up to date with scientific research on the Continent during the last five years. Professor Lacroix of Louvain has in this form summarised [1] eight of his war-time papers on the growth and morphogenesis of bone. The transplantation of small cubes of purely cartilaginous tissue from the growth cartilages of rabbits' rib and radius to the brain or kidney capsule of other rabbits led to the formation of ectopic lamellar bone. Fibroblast cells gathered round the transplanted cubes just as they do around the ossification groove of growing long bones—a "typical induction phenomenon" is Lacroix's comment. Hyaline cartilage from the rib, transplanted to the upper extremity of the tibia of another rabbit, was assimilated to the tibial growth cartilage and became in due course the seat of a typical endochondral ossification. Lacroix described this as an instance of assimilatory induction; and his belief in "the existence in the growing cartilage of an organiser" seemed to be confirmed by finding that alcoholic extracts of the long bones of newborn rabbits, injected into the thigh muscles of other rabbits, led to the formation of fairly well differentiated depots of ectopic bone. To the causal agent he has given the name "osteogenin."

None of these results will surprise those familiar with the experimental production of ectopic bone: gall-bladder and urinary epithelium will do as much.[2] The use of the terminology of "organisers" and "induction" is a gratuitous complication. An embryonic inducing substance is a contact hormone with a fairly high degree of specificity of action which shunts the developing cell into a pathway of differentiation which is thereafter indefinitely maintained in cellular heredity. Not every causal stimulus qualifies: an ill-fitting shoe does not organise blisters, nor does an enzyme act as organiser for the end-products of its action. *Nature's* summary, though it is by the author himself, gives no hint of the part that phosphatase may play in bone-formation—a part suggested so long ago as 1923 by Robison, and strikingly confirmed by Blum's [3] demonstration of the formation of ectopic bone in muscle by the injection of kidney phosphatase together with an appropriate substrate for its action. (Nor does Lacroix mention the fact that fibroblastic action is always particularly intense around tissue homografts, such as his own were.) Offered the right conditions, many cells of the fibroblast superfamily seem to be able to form bone. What more for this purpose can a fibroblast ask than to have phosphatase and substrate near to hand? The morphogenesis of bone is a subject just emerging from the penumbra of ad-hoc explanatory devices—"organisers" and the like. The less we *need* to hear of them the better; and in Lacroix's experiments there is really no need to hear of them at all.

AURICULAR FIBRILLATION IN MYOCARDIAL INFARCTION

A study by Askey and Neurath,[4] who have investigated the 84 cases of auricular fibrillation occurring in 1247 patients with myocardial infarction, suggests that in such patients the onset of fibrillation is of grave prognostic significance. Only cases where the arrhythmia was confirmed by an electrocardiogram were considered, and the recorded incidence of auricular fibrillation might well have been higher if transitory cases had been included. The most striking finding was that the case-mortality for the entire series during their stay in hospital (average about a month) was 51%, whereas in those with auricular fibrillation it was 80%. The case-mortality in patients with persistent auricular fibrillation was 89%, compared with 59% in those in which the arrhythmia disappeared. The time of onset of fibrillation had a profound effect on the prognosis. In 49 cases it was found in the first electrocardiogram done after infarction, and in only 2 of these did it later disappear; in 35 cases it developed subsequent to the infarction and in 27 of these the rhythm later became normal. In this latter group the prognosis worsened if the fibrillation lasted more than a day. Systemic embolic phenomena developed almost five times as often in the patients with auricular fibrillation as in those with sinus rhythm.

In view of these findings it is clear that whenever auricular fibrillation is detected in a patient with myocardial infarction an attempt should be made to regain normal rhythm. Askey and Neurath [5] compared the effects of digitalis alone, quinidine alone, and the two drugs in combination. For the entire group and for those without congestive failure quinidine gave the lowest mortality and the highest rate of return to sinus

1. Lacroix, P. *Nature, Lond.* 1945, **156**, 576.

2. Cf. Huggins, C. B., Sommet, J. F. *J. exp. Med.* 1933, **58**, 393; Bourne, G. *Quart. J. exp. Physiol.* 1943, **32**, 1.
3. Blum, G. *Lancet*, 1944, ii, 75.
4. Askey, J. M., Neurath, O. *Amer. Heart J.* 1945, **29**, 575.
5. *Ibid*, 1945, **30**, 253.

rhythm, while in the group with congestive failure digitalis and quinidine combined gave the best results. Digitalis alone was unsatisfactory in both groups. Quinidine was found to be contra-indicated in the presence of conduction defects. It is therefore recommended that in patients with auricular fibrillation and myocardial infarction quinidine should be immediately administered, unless conduction defects are present. If the arrhythmia arises several days after the infarction and there is no evidence of congestive failure it is well to wait for twenty-four hours to see whether sinus rhythm returns spontaneously; if it does not, quinidine should be given. If congestive failure is present as well as auricular fibrillation, quinidine and digitalis should be given immediately. In cases where fibrillation coincides with the infarction, Askey and Neurath recommend atropine sulphate given hypodermically in an initial dose of gr. 1/50, followed by gr. 1/150 thrice daily. While their series is not large enough to permit of dogmatism, their evidence justifies a full trial of the measures they recommend. Careful note should be taken of the danger of giving digitalis by itself in such cases.

THE PREDIABETIC MOTHER

IT has long been recognised that where the mothers are established diabetics the fœtal and neonatal mortality rates are high and the infants born alive often show striking changes, such as increased birth-weight, hypertrophy of the heart, hyperplasia of the islets of Langerhans, and excessive extramedullary erythropoiesis. It seems that these changes may occur in infants whose mothers show no evidence of diabetes mellitus until after parturition. Thus Miller and his colleagues [1] found that the combined fœtal and neonatal mortality-rate in a group of diabetic mothers was 23·6% where the diabetes was manifest during pregnancy, compared with 35·4% where the child was born 1–5 years before the onset of diabetes and 11·9% where it was born 11–15 years before the onset. Comparable trends were found in the incidence of large babies: taking 5 kg. as the minimum standard for overweight, they found that only 0·07% of 20,219 infants born to nondiabetic mothers were overweight, compared with 3·9% of 256 infants born to prediabetic mothers, and 6·4% of 93 infants born after the onset of maternal diabetes. Miller [2] has carried the investigation a stage further. He finds that the mortality-rate among 253 infants born to women who developed diabetes after the age of 40 was 8·3% compared with 2·0% in a comparable group of women who did not develop diabetes. The mortality among the infants of prediabetic mothers was definitely related to the length of time between the birth and the onset of diabetes: among the infants born 16 years or more before the onset of maternal diabetes it was 6·0%, compared with 15·8% in those born 15 years or less before the onset. The difference in the average birth-weight was also statistically significant, being 3·53 kg. in the offspring of nondiabetic mothers and 4·15 kg. in the prediabetic mothers. This high birth-weight was not associated with maternal obesity, since the average birth-weight in a group of obese nondiabetic mothers was only 3·6 kg.

The significance of these findings is difficult to assess. They certainly show that maternal hyperglycæmia has little to do with the death of the fœtus—a contention that has already been advanced by Miller [3] who reported 7 cases of infants showing all or most of the characteristic features of the child born of a diabetic mother, although none of the mothers gave any evidence of diabetes until after the birth of the child. A practical implication of this study is that the birth of an infant who is overweight or has macrosomia, cardiac hypertrophy, or abnormal extramedullary erythropoiesis may be the first sign of impending diabetes mellitus in the mother, and that women developing diabetes after the childbearing period are recruited almost entirely from that 5–7% of mothers who give birth to infants weighing more than 4 kg.

1. Miller, H. C., Hurwitz, D., Kuder, K. *J. Amer. med. Ass.* 1944, **124**, 271.
2. *New Engl. J. Med.* 1945, **233**, 376.
3. *Amer. J. med. Sci.* 1945, **209**, 447.

FIRST THINGS FIRST

MANY will be astonished to learn that of the 25 medical schools in Great Britain today compulsory courses in tuberculosis are arranged only in 9. At the others the student is at liberty to attend the local authority's clinics and sanatoria in his own free time. But so busy is he already, and so lukewarm is the encouragement, that he is quite likely to let the matter slide, and to see only those cases, usually advanced ones, which come his way in routine hospital practice, and which (or the like of which) he can expect to meet again in his final examination. It is not surprising therefore that medical practitioners on the whole are inept at recognising or even suspecting tuberculosis before it is blatant.

The Tuberculosis Educational Institute, an offspring of the National Association for the Prevention of Tuberculosis, draws attention to this state of affairs in a *Memorandum on the Teaching of Tuberculosis to Medical Students*. To remedy the defects, the institute's committee feel that the scheme put forward in the Goodenough report might advantageously be amplified, and they make the following suggestions:

(1) The physician in charge of the dispensary, and/or the medical superintendent of the sanatorium, might be appointed a lecturer on the staff of the medical school which may be situated within the region or area which the dispensary or sanatorium serves.
(2) All medical students must be attached to approved tuberculosis dispensaries as clinical clerks for short periods, during which they should also become acquainted with the technique and organisation of mass radiography.
(3) Facilities should be provided for short periods of residence at approved sanatoria for medical students who wish to make a further study of the subject.

It should not be impossible to act on these suggestions. Some of the many hours now given to watching surgical operations which most of the students will never attempt to perform, and to the study of rare and exciting conditions with no diagnostic or therapeutic urgency and with inexorable prognoses, might well be spared for tuition in a disease which in theory is both preventable and curable, but which in practice continues to exact a heavy toll of life and the fullness thereof.

REPORTING WORK ON CANCER

OF all fields of medical research, cancer is probably the slowest to yield a harvest. This is because the sole outward and visible sign or criterion of the disease is a tumour which takes much time to develop. It is true of course that rapid results are sometimes obtainable, but these usually relate to something other than tumour production by carcinogenic agents or tumour treatment by therapeutic agents. Most experimental work requires at least a year and probably far longer to mature, and it is only well-matured results that are of interest to the serious student of the subject. Hence the task of providing year by year, for an annual report, new results that will command widespread attention is in the nature of things almost impracticable. Would not a progress report every third year from any one centre or contributor afford a reasonable compromise between the investigator's need of freedom to meditate and the administrator's need of control of the expenditure of public funds?

Probably for the reasons we have mentioned, the results obtained in various departments of biophysics and of radiological physics appear the most impressive of those recorded in the 22nd annual report of the British

Empire Cancer Campaign.[1] In these departments definite answers may now be given to certain well-defined questions. Thus the total absorption of energy in the body of a patient undergoing treatment by all types of radiation can be measured. So also can the dosage in body cavities, or the radon content of the air in luminous-dial factories. The report also shows, however, that new carcinogenic chemicals and new experimental animals have been found. To the already long list of growths caused by acetylaminofluorene may now be added tumours of the bladder in mice. It is useful to have an animal smaller than the dog for this study. Rats and guineapigs, previously resistant to skin cancer, have yielded to the surface action of 9 : 10-dimethyl-1 : 2-benzanthracene. Urethane is said to be responsible for an increase in the number of mice bearing lung adenomata.

It is no accident that for several years the statistical reports of the clinical research committee have been the most substantial contributions to the annual report. These are based on long-term observations, and are the product of several years of work. This year valuable data concerning the antecedents and results of treatment of 528 cases of cancer of the pharynx and larynx are recorded.

UNREWARDED RISKS IN INDUSTRY

BEFORE the war, as the Minister of Fuel and Power has lately reminded us,[2] the wages of coalminers ranked 86th among British industries; the great majority, according to Kuczynski,[3] earned less than the minimum family requirements laid down by Seebohm Rowntree.[4] To doctors, with old-fashioned ideas of equity, and accustomed to think of coalmining as the most dangerous of trades—first cause of fatal and non-fatal industrial accidents, and directly responsible for much ill health—this seems an odd arrangement. It is, however, but one expression of what is apparently a general truth: industrial wages in "normal" circumstances take little or no account of hazards to life and health, though "danger money" (in the Merchant Navy) and "dirt money" (at the docks) are, in a limited sense, exceptions to this rule. During the six years of war miners, as others, have earned more; recent figures [2] put their average rise in money wages at 95%.

A paper by Rothschild [5] correlates wages in 29 miscellaneous skilled and unskilled trades in social classes III–V with the standardised mortality ratios published by the Registrar-General in his Occupational Mortality Supplement.[6] The material is not very representative: textiles, coal and other mining, and black-coat workers are excluded; London wage-rates only are quoted; and no specific study of industrial accidents is attempted. (For these deficiencies the author should not be blamed. The often excessive difficulties of marrying social with medical statistics are, we trust, on the agenda of the new Central Statistical Office.) The results, nevertheless, are interesting and they confirm the general impression of the situation before the war. In the 29 trades there is no significant association between wages and occupational mortality. Such relation as does exist is in fact inverse: death-rates above the average tend to be associated with wages below the average. $r = -0{\cdot}26$, and when refined to exclude some of the general influence of social status as distinct from strictly occupational factors, $r = -0{\cdot}16$. Unfortunately, correlations with the mortality-rates of married women grouped by the occupation of their husbands are not included, nor are coefficients for each of the three social classes separately. Such contrasts as these are found in Rothschild's table:

Social class	Occupation	Average weekly wage (1925–36) in London (shillings)	Occupational mortality (adjusted for social class mortality)
III	Shipjoiners	68	56
III	Hand compositors	89	150
IV	Engine-shop labourers	46	133
IV	Railway firemen	66	76
V	Shipbuilding labourers	53	148
V	Navvies (civil engineering)	57 (on Dec. 31, 1936)	52

The problem is far from simple. Often we do not know whether differences in morbidity and mortality within the broad social classes are truly occupational in origin, and these differences deserve much closer inquiry than they have hitherto received. Again, in no society could the risks borne be the only, or chief, consideration in determining wage-levels. But it seems anomalous that "the bearing of these risks," in trades at similar levels of skill and responsibility, "is a service provided freely by the workers." "The reasons for this state of affairs," continues Rothschild, "are not far to seek. They consist partly in the ignorance of the workers as to the facts about risks, but the main factor is probably the impossibility for workers to move from one occupation to another or from one place to another, because they lack financial and other opportunities to do so and stand under continuous pressure to take up work quickly without waiting and weighing alternative possibilities." The ignorance, where it exists, might be overcome by the development, long overdue on many accounts, of medical departments in our great trade unions. Full employment as now projected demands that "the labour market should always be a seller's market rather than a buyer's market." [7] The measure of full employment already attained seems to be a powerful factor in the drift from the coal industry. Miners are well aware of their normally unrewarded occupational risks and of the very moderate success that has attended efforts so far made to reduce the hazards of coalmining.

THE MENTAL NURSE OF THE FUTURE

"We consider that the mental nursing service should be held to be comparable in status to any branch of the nursing profession."

THIS sentence sets the tone of the report of the Subcommittee on Mental Nursing and the Nursing of the Mentally Defective, appointed by the Athlone Interdepartmental Committee on Nursing Services.[8] The fact that mental nurses have so far not been held in the same esteem as men and women in other branches of nursing reflects on the public attitude towards mental disease and those who suffer from it. The report shows that some 16,400 women and 12,600 men are employed in the service. To stimulate recruitment and improve the quality of candidates the committee suggest that qualified mental nurses should be registered by a statutory body: registration on a supplementary part of the State register, as at present, is not satisfactory, and the position is further complicated by the alternative examination offered by the Royal Medico-Psychological Association. In the view of the committee the sole responsibility should rest with the General Nursing Council, subject to conditions to protect those now holding R.M.P.A. certificates. If this plan cannot be accepted they suggest that a separate statutory body shall be set up similar to the Central Midwives Board.

1. Report for 1945. Obtainable from the Campaign at 11, Grosvenor Crescent, London, S.W.1.
2. *Hansard*, Nov. 20, 1945, cols. 207 and 208.
3. Kuczynski, J. Hunger and Work, London, 1938.
4. Rowntree, B. S. Human Needs of Labour, London, 1937.
5. Rothschild, K. Institute of Statistics, Oxford, *Bulletin*, 1945, **7**, 193.
6. *Decennial Supplement*, Part IIa, 1938.
7. Beveridge, W. H. Full Employment in a Free Society, London, 1944.
8. H.M. Stationery Office. 1s.

The work of the mental nurse is exacting, physically and mentally. It is fitting that her salary should be maintained at a higher rate than that of the general-trained nurse. The 96-hour fortnight, which is regarded by the subcommittee as essential, might, we suggest, even be reduced in this branch of nursing. Other recommendations are what might be expected: recruits should be medically examined and radiographed before starting work, and examined again at yearly intervals; they should have at least a month's preliminary training before being admitted to the wards; the higher posts should be held only by nurses with double qualifications in general and mental nursing; superannuation schemes should be interchangeable, and nurses working in institutions for the mentally defective should have the same pension rates as nurses in mental hospitals; the ratio of nurses on day duty to patients—1 nurse to 11 patients—should be substantially reduced; and ward-maids should be employed. The subcommittee hold that all trained mental nurses should be entitled to live out if they wish, but the amount of living-out allowances is not discussed. Student nurses, it is agreed, should normally live in the nurses' home, or in quarters provided in the hospital; but they should be able to gain permission to live out if they can satisfy the hospital authorities that this is in their best interest. The old practice, still unfortunately current in some hospitals, of allowing the nurse to sleep "on the ward," so that she can be on call in case of emergency, is to be discontinued. Off duty, the nurse should have as far as possible the liberty of the private person, and the formation of nurses' councils is advised. Opportunities for recreation, and for the entertainment of friends, and better catering, should be arranged.

The great changes in mental treatment since the beginning of the century have brought the hope of recovery to many more patients, and a new interest to mental nursing. Our growing knowledge of the proper psychological management of the mentally disordered has made it essential that the women and men who undertake mental nursing should be intelligent, trustworthy, self-controlled, and instructed in their task. Recruits are scarce and drawn in many cases from the simpler rather than the more intelligent groups. Their courses of lectures, usually given by junior doctors whose interests lie elsewhere, are often sketchy and ill-suited to their purpose. The training of the mental nurse needs revising thoroughly, by those whose experience and knowledge qualifies them to advise. A new spirit in the nursing staff will come most quickly from a new spirit among the doctors teaching them.

SPECIAL DIETS IN CANTEENS

THE conference on special diets in canteens, arranged by the Industrial Welfare Society and held at the Central Middlesex Hospital on Oct. 18, may well be a sign of the times. It is usually social necessity that compels us to study the dietetic needs of any definable group of the population. Here it was the worker in industry suffering from an incipient ulcer, or a recovered patient, who was being considered. But how much attention did we pay to the feeding of schoolchildren until the inquest on the South African War drew attention to the poor physical condition of many of the recruits? And little interest was taken in the right feeding of the aged before the population curve made us realise that in twenty years' time the productive capacity of the old might be a matter of supreme importance. How far, then, was this conference prompted by the vague awareness that a policy of high employment makes it necessary to reduce the figures of absenteeism? Miss F. Garratt, in her paper on Some Existing Schemes and Plans, mentioned this aspect of the problem in her reference to Soviet experience. In 1935, according to the report of Burnet and Aykroyd to the League of Nations, 600,000 workers in the U.S.S.R. were receiving special diets in their canteens. Most of the early Russian researches were undertaken by Professor Pevsner and his colleagues, whose work has not been fully appreciated in Britain. Pevsner was studying the subject in 1922, but it was not until 1925 that he obtained permission to open an experimental department associated with a factory; and only in 1931 was the Moscow clinic established for the study of the influence of diet on incipient tuberculosis, rheumatic conditions, gastric ulcer, and other ailments. The process of industrial reconstruction doubtless delayed the application of Pevsner's findings; but the evidence suggests that even in a country with a high level of employment there were health authorities who needed to be convinced that the scheme was practicable.

Dr. F. Avery Jones, who spoke on The Patient Returns to Industry, was mainly concerned with the recovered ulcer patient. For such a man regular meals, a light diet, and the avoidance of undue fatigue are indispensable, if his ulcer is not to recur. Such foods as fried dishes, twice-cooked meat, new bread, pastries, meat soups, curries, stews, coarse-fibred vegetables, and fruit with pips or seeds should be avoided; and this demands specially prepared dishes served at correct intervals. "The man," said Avery Jones, "is not an invalid, and will be capable of a very good day's work, provided the hours are regular and there is no constant bending and he has the right diet." In their brief review of existing facilities, Miss Garratt and Miss J. Bond said that a great number of firms who have not yet initiated schemes for special diets are anxious to do so and are seeking guidance. The number of workers benefiting from the present canteen services rose steadily in 1944–45, as employees gained confidence in a diet that would help them to keep fit. The "Invalid Kitchens" organisation in London now operates eight centres with a delivery service capable of providing diet meals to small factories where no canteen exists. These modest experiments may well be the seeds of an inclusive scheme that will in time help to save the country several hundred thousand hours of absenteeism in an average working week. But it is not, it seems, until a country is compelled to weigh the cash value of output per man by the shrinkage of its labour reserve that it begins to set a value on preventive services of this nature. The benefit to the sufferers themselves could scarcely be reckoned in money alone.

RELEASE OF DOCTORS FROM SERVICES

GENERAL-DUTY medical officers in the Army are to be released as follows: groups 25–30 during January, groups 31–38 during February. Specialists in groups 25 and 26 will be released during January and those in group 27 during February. Because of their greater age on entry, the majority of specialists are in the first 30 groups, and proportionately the release of general-duty medical officers in groups 1–38 is equivalent to release of specialists in groups 1–27. The Central Medical War Committee is still recruiting specialists for the Army so as to facilitate release of specialists in later groups.

The Royal Air Force is stated to be releasing doctors in groups 27 and 28 in February and March.

Dr. H. E. MAGEE is to deliver the Milroy lectures at the Royal College of Physicians of London on Tuesday and Thursday, Feb. 12 and 14, at 5 P.M. He is to speak on the Application of Nutrition to Public Health—Some Lessons of the War.

Air Vice-Marshal T. J. KELLY, C.B.E., M.C., has been appointed an honorary surgeon to the King in succession to Air Vice-Marshal F. C. Cowtan, who vacates the appointment on his retirement from the Royal Air Force.

The Middlesex County Council have appointed Dr. J. B. COOK honorary consulting physician to the West Middlesex County Hospital. Dr. Cook retired last month after 32 years as medical director (formerly medical superintendent) and a total of 38 years' service to the hospital.

Special Articles

PREVENTION OF ACCIDENT AND LIMITATION OF INJURY*

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THE community is demanding that the medical profession shall develop the science of social medicine. Crew (1944) has defined this as medical science in relation to groups of human beings and includes preventive and industrial medicine in its scope. He maintains that industrial medicine is "not merely or mainly concerned with the prevention and elimination of sickness but is concerned also and especially with the study of all social agencies which promote or impair the fullest realisation of biologically and socially valuable human capacities."

The work of orthopædic surgeons has hitherto largely been the teaching and practice of clinical investigation, diagnosis, and treatment of those who come under our care and the study of the pathology of their condition; in addition, many of us have advised on the accommodation of our patients in hospitals and clinics and on the staffing of these institutions. We have interested ourselves in team-work and coöperated in rehabilitation.

The present is a suitable time to consider whether it is not also our duty to develop a far closer coöperation with industrialists and doctors concerned with that branch of industrial medicine we call trauma. Surely our vast experience of this subject can help to prevent many accidents, limit the injury they produce, and thereby reduce the impairment of human capacity from this cause. James Mackintosh (1944) remarked that we do not tell the public enough about the appalling waste caused year by year from sickness or try to show how much can be avoided. The same is true of accidents. The waste of man-power from accidental injuries in each branch of industry and on the road is made public, but few realise to what the total amounts, and this does not include the loss of work due to accidents in the home and on the playing-fields.

PREVENTION OF ACCIDENTS IN INDUSTRY

The Factory Act of 1844 was probably the first comprehensive measure to protect the worker from accident, but the country had begun to appreciate the dangers of industry some years before that. The *Times* of June 7, 1815, reported a statement made by Sir Robert Peel in the House of Commons that it was gratifying to learn that the loss of life had not exceeded 1% per year of those employed in cotton mills, and that this loss fell short of the average loss sustained in every other class of manufacturing industry. Dr. E. R. A. Merewether, HM senior medical inspector of factories, in his annual report for 1943, noted that the rate of fatalities was then about 0·017% per annum, and the proportion of mechanical accidents had been gradually falling until they were only 16·7% of the total accidents. Yet the Minister of Labour and National Service in the last Government still estimated the financial cost and production losses of industrial accidents at £70,000,000 a year. Moreover, during the war the accident-rate went up for some groups (table I).

TABLE I—ALL REPORTABLE ACCIDENTS

Year	Adult males	Adult females	Male young persons	Female young persons
1938	134,752	14,626	22,922	7803
1939	146,417	17,029	22,364	7665
1940	173,228	23,766	26,492	8493
1941	191,343	42,857	27,757	9341
1942	203,865	71,244	29,028	10,493
1943	200,651	73,065	27,623	9805
Per cent. increase of 1943 over 1938	*49*	*400*	*21*	*26*

The causation of these accidents is shown in table II. It is known that 1 in 7 of all injuries is to the foot, and two-thirds of these are toe injuries. That most of these are preventable is illustrated by the fact that in one large industrial firm where the spring-steel-capped boot has been used by employees foot injury is rare. Finger injuries form a higher proportion still and in some factories may be 1 in every 3 accidents. These two examples show that what are crudely called "*minor* injuries" are the "*major*" anxiety to the employer of labour.

In 1943 in shipyards and on ships in docks there were 20,868 accidents, of which 133 were fatal. This is an 8·5% increase on the previous year. Prevention is difficult, owing to the liability to fall and the fact that several contractors may each be employing several gangs of tradesmen in one ship. In London the River Thames Dry Dock Proprietors and Ship Repairers Association are active in preventive propaganda.

TABLE II—PROPORTION OF REPORTABLE ACCIDENTS (FATAL AND NON-FATAL) DUE TO VARIOUS CAUSES

Causation	1942	1943
	%	%
Power-driven machinery	17·1	16·7
Use of hand tools	8·0	8·2
Struck by falling body	12·0	12·0
Persons falling	13·3	12·8
Stepping on and striking against objects	8·2	8·7
Handling goods	25·7	26·1
All other causes	15·7	15·5

There is evidence that the first day at work is the most dangerous day, and that youths have a higher percentage of accidents than adults. The Factory Act provides a basic safety to the worker, but many factories go a stage further. There are fewer accidents if the indoor temperature is constant at 65° F, and if apathy and drowsiness are limited by suitable colouring of the walls or by special lighting.

The Royal Society for the Prevention of Accidents, which helps the Ministry of Labour and its Factory Department in this work, is fully aware of the human element in accident causation and is anxious to refute Mr. Micawber's remark, "Accidents may be expected with confidence and must be borne with philosophy." The worker must be taught to be safety-conscious and encouraged to be tidy, especially where gangways are concerned. "Good housekeeping" in a factory is all-important. The Society formulates six essentials of a works safety organisation: the support of the management, focusing the safety work in one man, safety committees, inspections and investigations, propaganda, and accident records.

The safety officer appears to be a link between management and employee, and when an industrial medical officer is employed he will be in constant touch with him as he is the head first-aid officer. He is not a tradesman, and it is estimated that one is required for every 1500 workmen. He can give invaluable advice to managers and education to the safety committee and employees. (In our experience preventive measures and general medical advice are usually of a lower standard in small factories than in the large ones.)

The Society lays great emphasis on propaganda, especially by leaflets, shop meetings, and posters, and produces these for issue by the Ministry.

Few hospitals file the case-notes in such a way that any comprehensive accident records can be ascertained. This applies particularly to the casualty department, and it must be realised that fracture-clinic records do not include all injuries.

THE MINES

In the mines there is great scope for limiting the accident-rate. The Safety in Mines Research Board emphasise the value of protective equipment, and most collieries carry on a continual campaign on lines advocated by the Royal Society for Prevention of Accidents. Nearly half the accidents in British mines causing

* Presidential address to the British Orthopædic Association, October, 1945.

disablement for more than three days affect the hand or foot.

It is only during the last twenty years that any serious attempt has been made to introduce proper and suitable protective equipment for colliery work. Steel-capped boots, gloves, knee-pads, and shin-guards all give efficient protection, as do the hard hat and goggles to the head and eyes, but the wearing of protective equipment at coal mines is not enforceable by law, though certain colliery companies insist on their men wearing some of the equipment.

In a coal-mine I visited I saw no miner without the steel-capped boot, and most were wearing knee-pads of felt and leather; all the men I spoke to appreciated the protection to the toes afforded by the boot and realised the seriousness of beat knee. Few at the face wore hard hats, and they gave frivolous reasons for preferring a cloth cap. It struck me that hand protection was difficult, except away from the face, when gloves undoubtedly limit finger injury in manipulating tubs, pit props, and machinery.

When I visited Johannesburg in 1942, Fouché showed me the Mines Hospital and discussed the knee injuries of miners from the gold mines. In the Union the guards worn are of fabric-reinforced rubber, and resemble cricket pads. Similar guards for the elbow are available. Knee protection is particularly important for these miners, because penetrating wounds of the knee-joint are more frequent there than among our coalminers.

THE SERVICES

In his Harvsian lecture this year Sir Alexander Hood urged that the keynote of all medical services should be prevention. The Army Medical Service was responsible for the crash helmet worn by motor-cycle riders, but protection from injury in mechanical transport is still in its infancy. Thus in one year in the Middle East there were over 8000 fractures from causes other than gunshot wounds. Experimental work on protection of the lower limbs of motor-cyclists has not yet advanced far enough to justify advice to manufacturers to build in a leg-protector. A sheet-metal guard fixed to the cycle will cause overheating of the engine in a warm country. The Canadian Army employed a tube-steel short guard, but this did not protect the knee or the femur. The ideal protective mechanism should be sufficient to prevent a fracture of the tibia or the femur and limit laceration of the soft tissue when a crash occurs.

It became evident in 1943 that injuries to the end of one or more fingers were being caused by the "lid" of certain types of tank dropping on the finger—so-called "tank finger." When the Army Medical Services had drawn attention to the frequency of this injury, it was prevented by a modification in design.

Sir Harold Whittingham (1944) has summarised the research done in the Royal Air Force medical branch to reduce accidents, particularly that into accident proneness, and many of us are familiar with the protective clothing worn and the continual efforts made to limit the effects of mishaps in that Service.

In the United States Lord and Coutts (1944) have surveyed the injuries encountered at a parachute school. At the time of the report there had been over 250,000 descents. They proved that when parachute-jumpers were taught to keep their feet together on reaching the ground, instead of following the old method of holding the feet 18 in. apart, the number of ankle fractures was much reduced.

ROAD ACCIDENTS

The 250,000 casualties a year on our roads include 6500 deaths and are costing the country £50,000,000 a year. Comparison of road and Merchant Navy casualties during the war show that the highways have been as dangerous as the high seas.

In general, fatal road accidents do not involve the very young; they are distributed fairly equally between the ages of 5 and 55, and people over that age suffer seriously. The efforts to prevent these accidents include the declaration made when obtaining a driving-licence, the Belisha beacon and road crossings and railings, road notices, speed controls, and the children's guides. Although the driver is required to read the Highway Code, there is no obligation on the cyclist or pedestrian to know of its existence.

In 1939 the Alness Report on the Prevention of Road Accidents attracted less attention than it merited, owing to the European situation. It is comprehensive and up to date today. In discussing the limitation of injury by improvements in car design the report pointed out that the human body is less likely to be severely injured if it strikes a flat surface than by an impact with prominent pieces of metal, such as a door-handle. The safety and welfare officer of one of our largest motor-car manufacturers thinks that motor-vehicle design has achieved a standard of safety thought unattainable twenty years ago. In his view the revolutionary changes are needed in the roads and not in the cars.

Most of us who treat people injured on the road will have noted groups of similar injuries, each caused in a similar way—such as the "bumper" fracture, and the "dash-board" simple fracture of the patella seen in passengers seated beside the driver. The motor-cyclist is prone to simple or open shin fractures, open wounds of the knee-joint with fracture of the patella, and fractures of the middle or lower third of the femur; further, two or all three may coincide in the same limb. The pillion rider may fracture her femur or dislocate her hip-joint.

The frequency of these injuries, which take months to repair, and our knowledge of their exact causation prompts me to urge that our opinion of how they can be minimised should command respect from manufacturers and those responsible for road-traffic control. The programme of imbuing older children with civic and communal responsibility—definitely a good safety campaign—will be more easily understood by them if they are shown why developments in road, car, and motor-cycle design have been made.

ACCIDENTS OF SPORT AND AT HOME

There does not seem to be any way of determining how many people are injured in their leisure hours, but Stocks (1945) has reported the civilian fatalities over several years. Nearly 500 males and nearly 800 females lost their lives in 1940 by falling downstairs. There must have been many more non-fatal accidents. If our stairs are at fault, prevention should be possible.

The prevention of accident and limitation of injury in all forms of sport provides the schoolmaster, coach, and physical-training instructor with enormous scope. How few are taught how to fall and how to save themselves when young, so that a useful safety habit is acquired.

FIRST-AID

Every year 20,000 factory injuries, causing three or more days' absence from work, become septic, so there is plenty of scope for first-aid in industry. Under the Factories Act, 1937, all factories must have first-aid boxes or cupboards or an ambulance-room; sometimes both are required. In 1916 important first-aid orders were issued by the Home Office under the Police, Factories, &c. (Miscellaneous Provisions) Act, and in 1930 the Board of Trade issued first-aid regulations applying to coal-mines. For many years the Order of St. John of Jerusalem, the British Red Cross Society, and the St. Andrew's Ambulance Association have instituted classes for training men and women not only in the British Isles but in many other parts of the world. Ministries, municipal authorities, and industrial business houses provide instruction, in some cases using the manuals of the Order of St. John or of the B.R.C.S. and in others pamphlets or books published for their own purpose. In 1939 the British Medical Association issued a pamphlet, *First-Aid in Industry*, which outlines the organisation suitable for a factory.

The teaching is done by medical men and by laymen who are already trained in first-aid. Certificates are given to those who pass the examinations. The doctors who give the lectures have had no teaching in this subject at their medical schools before this war. Hitherto the treatment advocated for a particular injury might differ in the various manuals, but it is now agreed by the Order of St. John and by the B.R.C.S. that the general principles in the two manuals shall agree. There is no doubt that a high standard of first-aid exists in this country. Before the war this was demonstrated in competitions, where teams and individuals showed great skill, and no-one will criticise the arduous task efficiently

carried out during the war by those employed at first-aid posts. The objects of first-aid are:

1. To save life by removing the cause of injury or removing the patient from this, by stopping hæmorrhage, by enabling the patient to breathe, and by preventing shock.

2. To limit the damage due to the injury by first-aid treatment of wounds, fractures, &c.

3. To relieve pain.

4. To transport the patient to a suitable place for further treatment.

It must be appreciated that first-aid is as important for the everyday injury—those so-called minor injuries—as it is for the fractured leg.

In factories and mines there are a considerable number of men trained in first-aid, and where there is a safety officer he is likely to be responsible to the industrial medical officer and nurse, if either or both are employed. Small first-aid equipment is in workshops and at the coal face. In the factory there is an ambulance-room, which may be as complete as a doctor's surgery, even with a small X-ray plant. A similar room exists near the pit-head of some collieries, but more often it is comparable to a ward dressing-room with facilities for resting a patient, carrying out dressings, splinting, and keeping records. The value of a full-time industrial nurse at such a dressing-room is now appreciated.

There is good reason to believe that the community will benefit if students are taught the first-aid treatment of open wounds, especially of the extremities with or without fracture, during their instruction in the subsequent treatment of these lesions. The orthopædic surgeon should develop an entente with industrial medical officers, full-time or part-time, so that the first-aid treatment will never be a separate entity but the first stage of the treatment which we carry out in a hospital. An efficient coöperation will limit the time-lag between injury and primary surgical treatment and should limit the length of incapacity.

THE SURGEON'S TASK

During the last two decades the surgeon, especially the orthopædic surgeon, has had great experience in the treatment of injuries of the extremities. Through skilful treatment there has undoubtedly been limitation in injury, but advances in knowledge and improvement in the organisation of hospital accident services should limit disablement further. Hence it appears reasonable to investigate the opportunities for the surgeon to aid in the prevention of accidents and limitation of injury.

Policy of Surgical Treatment.—It is our aim and our duty to return the injured to his work in a fit condition as soon as possible and to limit disablement if such is inevitable. This does not necessarily mean that for every injury the most rapid method of treatment is the best, for in many cases it may not lead to the minimum of ultimate disability. The principle of choice is to plan each step in treatment so that the surgeon proceeds from one to the next with precision, until the work is completed. The patient is to be kept fit mentally and physically while his injury is being treated. It is bad policy to return a man to the workshop or his office in such a condition that symptoms recur shortly after his return to work.

The "open" wound has long been the origin of protracted suppuration, not only when complicated by fracture but also when limited to the soft tissues, including injury to tendons. The discovery of penicillin has enabled the surgeon to embark on excision and primary suture, and the alternative of a secondary or delayed suture, with much greater chances of success. Experience is already showing that, with the help of penicillin, the conversion of a compound into a simple fracture can be carried into effect with greater safety. The wider adoption of these procedures will immensely reduce not only the time taken for recovery after injury but also the resulting impairment of function. Nevertheless, penicillin is neither a preventive nor a cure for suppuration due to all organisms; so the problem is not yet totally solved.

Research has been revealing how often secondary infection reaches wounds during dressings, particularly those done before the patient reaches hospital. The reduction in the number of dressings at all stages of treatment of wounds, particularly those involving tendons, bones, and joints, is an important factor in limiting suppuration and shortening incapacity.

Accident Services.—In 1943 the fracture subcommittee of the British Orthopædic Association prepared a memorandum on accident services, supporting the formation of such services throughout the country. Organised fracture services were recommended by the B.M.A. committee in 1935, and by the interdepartmental committee of the Home Office, the Ministry of Health, and the Scottish Office four years later. A comprehensive accident service of the type foreshadowed by these committees was working well in Vienna fifteen years ago and is proving a success in Birmingham and Oxford; several also existed, under a different name, in the Middle East. Eastwood, centred at Tel-el-Kebir, proved its value to the troops in the Canal Zone, as did Brittain and Brewer in Palestine. In this country regional services will be required, and coöperation between voluntary and municipal hospitals is essential. An accident service will serve as an excellent training-ground for students, especially postgraduates, and for orthopædic and general surgeons.

Planned services are particularly needed for the accidents of industry and the road, not only for the fractures but also for the soft-tissue injuries; treatment should be carried out by and under the supervision of the head of the particular team according to the type of lesion. It is essential that there should be close contact with the industrial medical officer, the industrial nurse, and the safety officer. They should be welcome in the outpatient and inpatient departments, and we should coöperate with them. Continuity of treatment from first-aid to the completion of rehabilitation is most important in our work. The surgeon can also learn by visiting the factory and the coal-mine. The first-aid and the ambulance-room service and transport should all be familiar to the surgeon. Progress cannot be made by adverse criticism alone, but constructive suggestions are likely to follow a coöperative effort.

The blood-transfusion unit and a surgical team from the accident service should be ready to go at short notice to factory or colliery whenever treatment on the spot is likely to be more successful than transporting the injured to hospital.

Those concerned in the treatment of the accidents of industry must convince the industrialist not only that there is a planned service for his injured workmen but also that this service is staffed by doctors with an up-to-date knowledge of the conditions in industry.

The prevention of deformity is already recognised as part of the work of the orthopædic surgeon. Let us realise that the prevention of accident and limitation of injury is an equally important part.

I wish to thank Dr. S. W. Fisher and Dr. E. R. A. Merewether and their colleagues for providing facilities which enabled me to appreciate how prevention of accidents is carried out in industry.

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IN *Why Smash Atoms?* (Pelican Books, pp. 140, 9*d.*) Mr. Arthur K. Solomon, PH.D., poses a question which he does not answer. Instead, he gives us a good account of the vicissitudes of the atom since Rutherford first attacked it with alpha particles. It was almost inevitable that, having discovered that the alpha particle is ejected from the radioactive atom, Rutherford should use it to hit back at the atom. And now we see the consequences of a really inquiring mind! In a sense all went well till 1939, when the "scientific world was shocked by a new discovery": it was found that a neutron entering the nucleus of the uranium atom caused it to explode with the emission of a relatively enormous amount of energy. The result of this disinterested research is that while half the world now foresees relief from the economic burden of daily life, the other half believes that Nemesis is not far ahead. Dr. Solomon's reluctance to answer his own question is understandable.

NEW YEAR HONOURS

THE first list of New Year's honours, issued this week, contains the names of the following members of the medical profession:

G.B.E. (Military)

Lieut.-General Sir ALEXANDER HOOD, K.C.B., C.B.E., M.D. Edin., F.R.C.P., K.H.P.
Director-general, Army Medical Services.

K.C.I.E.

Lieut.-General JAMES BENNETT HANCE, C.I.E., O.B.E., M.D. Camb.
Director-general, Indian Medical Service.

Major-General HEERAJI JEHANGIR MANOOKJI CURSETJEE, C.S.I., D.S.O., B.CHIR. Camb., K.H.S.
Late D.D.M.S., North-Western Army, India.

K.C.V.O.

Sir STEWART DUKE-ELDER, M.D., D.SC. St. And., F.R.C.S.
Surgeon-oculist to H.M. the King; late consulting ophthalmologist to the Army.

K.B.E. (Military)

Major-General FREDERIC THOMPSON BOWERBANK, O.B.E., M.C., E.D., M.D. Edin., F.R.C.P.E., F.R.A.C.P., K.H.P.
Director-general, N.Z. Army and Air Force Medical Services; physician to Wellington Hospital, New Zealand.

Surgeon Rear-Admiral GORDON GORDON-TAYLOR, C.B., O.B.E., M.S. Lond., F.R.C.S.
Consulting Surgeon to the Middlesex Hospital.

Surgeon Rear-Admiral RICHARD ALUN ROWLANDS, O.B.E., M.D. Lond., F.R.C.P.
Physician to the London Hospital.

Major-General WILLIAM HENEAGE OGILVIE, D.M., M.CH., F.R.C.S.
Surgeon to Guy's Hospital.

Major-General CHARLES MAX PAGE, C.B., D.S.O., M.S. Lond., F.R.C.S.
Surgeon to the Radcliffe Infirmary, Oxford.

Major-General ARNOLD WALMSLEY STOTT, F.R.C.P.
Physician to the Westminster Hospital.

Air Vice-Marshal STANFORD CADE, C.B., F.R.C.S., M.R.C.P.
Surgeon to the Westminster Hospital.

Air Vice-Marshal CHARLES PUTNAM SYMONDS, C.B., D.M., F.R.C.P.
Physician to Guy's Hospital.

Knights Bachelor

Major-General RALPH BIGNELL AINSWORTH, C.B., D.S.O., O.B.E., M.R.C.S.
Director of medical services, Joint War Organisation of British Red Cross and Order of St. John.

HAROLD ARTHUR THOMAS FAIRBANK, D.S.O., O.B.E., M.S., F.R.C.S.
Consultant adviser in orthopædic surgery, Emergency Medical Service; consulting orthopædic surgeon to King's College Hospital.

PAUL GORDON FILDES, O.B.E., M.B. Camb., F.R.S.
Director of chemical bacteriology, Medical Research Council.

ARCHIBALD MONTAGUE HENRY GRAY, C.B.E., M.D. F.R.C.P., F.R.C.S.
Dermatologist, University College Hospital; for special war services.

HENRY WADE, C.M.G., D.S.O., M.D. Edin., F.R.C.S.E.
Senior visiting surgeon, Bangour Emergency Hospital, West Lothian.

Lieut.-Colonel NILKANTH SHRIRAM JATAR, C.I.E., D.S.O., M.R.C.S.
Inspector-general of prisons, Central Provinces and Berar.

Lieut.-Colonel SAHIB SINGH SOKHEY, M.D., B.SC. Edin.
Director of Haffkine Institute, Bombay.

C.B. (Military)

Surgeon Rear-Admiral A. E. MALONE, M.B. Dubl.

Major-General D. C. MONRO, C.B.E., M.B. Edin., F.R.C.S.E., K.H.S.

Major-General T. O. THOMPSON, C.B.E., D.M. Oxfd, K.H.P.

Air Vice-Marshal A. F. ROOK, O.B.E., F.R.C.P., K.H.P.

C.B. (Civil)

Colonel L. W. HARRISON, D.S.O., M.B. Glasg., F.R.C.P.E.
Medical officer, Ministry of Health.

SOLLY ZUCKERMAN, B.A. Cape Town, D.SC. Lond., M.R.C.S., F.R.S.
Scientific director, R.A.F. bombing analysis unit; professor of anatomy designate, University of Birmingham.

C.M.G.

ROBERT BARR MACGREGOR, M.B. Edin., M.R.C.P.E.
Director of medical and sanitary services, Malaya.

C.I.E.

Colonel S. L. BHATIA, M.C., M.D. Camb., F.R.C.P.
Inspector-general of Civil Hospitals, Assam.

C.V.O.

IVAN WHITESIDE MAGILL, M.B. Belf.
Senior anæsthetist, Westminster Hospital.

C.B.E. (Military)

Surgeon Rear-Admiral C. F. O. SANKEY, O.B.E., M.B. Lond.

Surgeon Rear-Admiral F. J. D. TWIGG, M.B. N.U.I.

Surgeon Rear-Admiral R. J. WILLAN, M.V.O., O.B.E., M.S. Durh., F.R.C.S.

Brigadier J. D. S. CAMERON, M.D. Edin., F.R.C.P.E.

Brigadier J. M. MACFIE, O.B.E., M.C., M.B. Glasg.

Air Vice-Marshal F. C. COWTAN, C.B., M.R.C.S., K.H.S.

C.B.E. (Civil)

JOHN CRUICKSHANK, M.D. Glasg.
Professor of bacteriology, Aberdeen; for service to civil defence.

JOHN BOWMAN HUNTER, M.C., M.CHIR. Camb., F.R.C.S.
Sector hospital officer, London Emergency Medical Service.

CHARLES FREDERIC WILLIAM ILLINGWORTH, CH.M. Edin., F.R.C.S.E.
Honorary director of surgical services for the Emergency Medical Service, western area, Scotland; regius professor of surgery in the University of Glasgow.

THOMAS POMFRET KILNER, M.B. Lond. and Manc., F.R.C.S.
Nuffield professor of plastic surgery, University of Oxford; for services to the Ministry of Pensions.

Major-General R. W. D. LESLIE, C.B., O.B.E., L.R.C.P.I.
Regional hospital officer, Emergency Medical Service.

THOMAS PORTER MCMURRAY, M.CH. B.U.I., F.R.C.S.E.
Regional consultant in orthopædic surgery, Emergency Medical Service; professor of orthopædic surgery, Liverpool.

JOSEPH FRANCIS ENGLEDUE PRIDEAUX, O.B.E., M.R.C.S.
Deputy director-general, of medical services, Ministry of Pensions.

ARTHUR CHRISTOPHER TIBBITS, M.R.C.S.
M.O.H. for Nottinghamshire; for services to civil defence.

DAVID HYND, O.B.E., M.B., Glasg.
Territorial director, Swaziland branch, British Red Cross.

Lieut.-Colonel R. B. BILLIMORIA.
Hon. medical specialist, Indian Military Hospital, Bombay.

GEORGE VANCE ALLEN, M.D. Belf.
Principal, College of Medicine, Singapore; for services during internment.

DESMOND WILLIAM GEORGE FARIS, M.B. Lond.
Health officer, Malaya; for services during internment.

O.B.E. (Military)

Group-Captain F. R. CHISHOLM, M.D. N.Z., F.R.C.P., R.N.Z.A.F.

Colonel D. G. WALLACE, M.B., N.Z.M.C.

Surgeon Commander J. W. MACLEOD, M.D. McGill, R.C.N.V.R.

Surgeon Commander H. S. MORTON, M.B. Lond., F.R.C.S., R.C.N.V.R.

Surgeon Commander DAVID DUNCAN, M.D. Aberd., R.N.

Surgeon Lieut.-Commander F. P. ELLIS, M.B. Manc., R.N.

Surgeon Lieut.-Commander A. G. REWCASTLE, M.B. N.U.I., R.N.V.R.

Lieut.-Colonel S. P. BHATIA, I.A.M.C.

Colonel E. H. HALL, M.B. Dubl.

Lieut.-Colonel G. R. HARGREAVES, M.R.C.S.

Lieut.-Colonel W. H. HARGREAVES, M.R.C.P.

Brigadier B. E. SCHLESINGER, M.D. Camb., F.R.C.P.

Lieut.-Colonel P. A. STEWART, M.B. Glasg.

Colonel ALFRED SWINDALE, M.B. Durh.

Colonel A. C. TAYLOR, M.B. Toronto, F.R.C.S.E., I.A.M.C.

Lieut.-Colonel ALBERTINE L. WINNER, M.D. Lond., M.R.C.P.

Group-Captain J. MACC. KILPATRICK, M.B. Belf., R.A.F.

Wing-Commander EDWIN DONOVAN, M.B. Birm., R.A.F.O.

Wing-Commander G. B. GRAYLING, M.R.C.S., R.A.F.V.R.

Wing-Commander G. R. GUNN, M.B. Edin., R.A.F.V.R.

Wing-Commander K. B. REDMOND, M.B. Sydney, R.A.F.O.

Squadron-Leader AGNES C. GILLAN, M.B. Edin.

Colonel P. C. GABOURY, E.D., M.D. Montreal, R.C.A.M.C.

Colonel J. C. MACKENZIE, E.D., M.D. McGill, R.C.A.M.C.

Colonel PIERRE TREMBLAY, M.D. Montreal, R.C.A.M.C.

Lieut.-Colonel JULES MERCIER, E.D., M.D. Laval, R.C.A.M.C.

Lieut.-Colonel W. M. MUSGROVE, M.M., E.D., M.D. Manit., R.C.A.M.C.

O.B.E. (Civil)

DONALD MACDONALD WILSON, M.C., M.B. Edin.
For services to casualty-clearing hospital, Wellington, N.Z.

Mrs. FREDA GIBSON, M.B. Adelaide.
Flying doctor on Eyre Peninsula, South Australia.

FREDERICK HILTON WALLACE, M.B. Sydney.
For public and municipal services in Geelong, Victoria.

Lieut.-Colonel C. A. BOZMAN, M.B. Edin.
Officiating public-health commissioner Government of India.

Major JASWANT SINGH, M.B. Edin.
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ERNEST JAMES BLACKABY, M.R.C.S.
Medical officer, Zanzibar.

Colonel J. P. FEHILY, M.B. N.U.I., F.A.C.S.
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BRIAN MAURICE JOHNS, M.B. N.Z., F.R.C.S.E.
Surgeon, Malaya; for services during internment.

NICOL CAMPBELL MACLEOD, M.B. Glasg.
D.D.M.S. Hong-Kong; for services during internment.

RICHARD ALAN PALLISTER, M.D. Durh., M.R.C.P.
Medical officer, Malaya; for services during internment.

Mrs. MARGARET SMALLWOOD, M.B. Melb.
Medical officer, Malaya; for services during internment.

DEAN ABBOTT SMITH, M.B. Camb.
Medical officer, Hong-Kong; for services during internment.

M.B.E. (Military)

Surgeon Lieut.-Commander H. L. BACAL, M.D. McGill, R.C.N.V.R.

Surgeon Lieut.-Commander W. C. S. FIELDS, M.D. Harvard, R.C.N.V.R.

Surgeon Lieut.-Commander GAETAN JARRY, M.D., R.C.N.V.R.

Surgeon Lieutenant J. I. CUNNINGHAM, M.B., R.N.V.R.
Surgeon Lieut.-Commander P. F. D'MELLOW, R.I.N.V.R.
Captain A. A. BASHIRY, I.A.M.C.
Major I. McK. BURNS, M.B. Glasg.
Captain FRANCIS EDWIN DIAS, I.A.M.C.
Captain R. E. GLEN, M.B. Glasg.
Major ALICE COX, M.D. Glasg., attd. S.A.M.C.
Lieut.-Colonel J. F. DAVIDSON, S.A.M.C.
Major EDWARD HORTON BENSLEY, M.D. Toronto, R.C.A.M.C.
Major HARRY HAMILTON CHACE, M.M., E.D., R.C.A.M.C.
Major FREDERICK CYRIL JENNINGS, M.D. Dalhousie, R.C.A.M.C.
Major C. J. MACDONALD, M.D. Dalhousie, R.C.A.M.C.
Major HUGH MACDONALD, E.D., R.C.A.M.C.
Major B. F. MILLER, M.D. Dalhousie, R.C.A.M.C.
Lieut.-Colonel S. H. HEARD, M.R.C.S., I.A.M.C.
Major JOAN K. S. INCE, M.R.C.S., R.A.M.C.
Wing-Commander W. N. MACLAY, M.R.C.S., R.A.F.V.R.
Squadron-Leader T. G. WARD, L.R.C.P.E., L.D.S., R.A.F.V.R.
Flight-Lieutenant R. U. CARR, M.R.C.S., R.A.F.V.R.
Flight-Lieutenant DAVID CRICHTON, M.B. Edin., R.A.F.V.R.
Flight-Lieutenant R. W. MCDOWELL, M.B. Belf., R.A.F.V.R.
Flight-Lieutenant C. R. SLUMING, M.B. Lpool, R.A.F.V.R.

M.B.E. (Civil)

Mrs. JEANIE G. FOUGERE, M.B.
For services to women's war organisations in New Zealand.
Captain A. R. P. IMAN, I.A.M.C.
Captain N. P. BILLIMORIA.
Hon. ophthalmic surgeon, Indian Military Hospital, Bombay.
HUBERT CRAYDEN EDMUNDS, M.R.C.S.
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PARESH CHANDRA GUHA, A.M.S., L.M.S.
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ANANT KRISHNAJI NULKAR.
O.M.P., Indian Military Hospital, Poona.
RAM LAL TULI, M.B. Punjab.
Deputy director of public health, Central Provinces and Berar.
JOHN AUSTEN PERCIVAL CAMERON, M.B. Edin., F.R.C.S.E.
Medical officer, Malaya; for services during internment.
NATHANIEL CRICHLOW, M.B. Glasg.
Medical officer, British Solomon Islands Protectorate.
NOEL JAMES LINNINGTON MARGETSON, M.D. Ontario, F.R.C.S.E.
M.O.H., Montserrat, Leeward Islands.
DOUGLAS ALKINS SKAN, M.R.C.S.
Pathologist, Nyasaland.
HUGH SMITH, M.D. Glasg.
For services during internment in Malaya.
WILLIAM DE WEVER WISHART, M.B. Edin.
Municipal health officer, British Guiana.
MUNIR KHALIL MISHALANY, M.D.
Asst. senior medical officer, Palestine (honorary).

Medicine and the Law

Child's Death in Hospital

REFERENCE was made in this column on Dec. 8 (p. 755) to a coroner's remarks at an inquiry into the death of a patient at the Manchester Children's Hospital. It was suggested that detrimental comments made at an inquest attain a publicity which can be less than fair to parties concerned. The report of Lord Wright's Committee on Coroners was recalled in support of the recommendation that a coroner should be chary of expressing views on professional negligence. The sequel seems to justify the warning.

The incident was, of course, the subject of full and prompt examination at the instance of the governors of the hospital. The report of the committee of inquiry will presumably not be made public. There is authority, however, for the following statement, which, in fairness to the resident surgical officer whom the coroner criticised, deserves no less attention than the criticism.

The coroner's comments gave the impression that the R.S.O. refused, on the ground that he was "off duty," to attend an urgent call, and that he callously allowed the child to bleed steadily to death. The committee of inquiry have found that he did not in fact make any such refusal on any such ground; that on the contrary he accepted responsibility without demur; that his delay in seeing the patient was due to his interpreting as a routine message what was intended to be an urgent call and was not due to any callousness or culpable neglect; and that, on realising the urgency, he acted promptly and efficiently.

The critics can, of course, rejoin that the truth and nothing but the truth emerged at the inquest, and that the hospital's inquiry naturally and inevitably resulted in white-washing the actions of the hospital staff. If, however, the committee of inquiry have not in fact conspired to put forth a deliberately false statement, we come back to the position that the coroner's criticisms received a publicity which no correction can catch up. Meanwhile all that can now be done is to make sure that there is as little ground for criticism as possible in future. The hospital can claim that, among some 26,000 patients treated for the removal of tonsils and adenoids during the past 25 years, there has been only one previous fatality of this nature.

The Patient on the Stairs

A paragraph in the *Times*, headed "£1641 Damages awarded against Doctor," proved to be less serious to professional reputation than the caption had suggested. The defendant, a radiologist practising in Glasgow, had been found at fault rather as a householder than as a medical practitioner. A patient who had come to consult him was told to find his own way out of the house. He was subsequently found lying helpless on the basement stairs; his spine was broken and he died two weeks later. Damages were awarded to the widow and her eight children. They had claimed £4700; they were awarded rather more than a third of that sum.

The cause of action was negligence. The Court of Session in Edinburgh held that the proximity of unlighted stairs to a dark or badly lit passage amounted to a danger to persons not acquainted with the house. The brief report does not state whether the judge took note of war-time difficulties of staff or of the fervent appeals of the Minister of Fuel and Power to turn off all lights. There was presumably no gas strike at the time. A medical practitioner in England, not many years ago, was sued when a visitor met with an accident through the slipping of a mat on a polished floor. Such mishaps are not peculiar to a doctor's household. A consultant could not contend that patients are not invited to his consulting-room.

The case is a reminder of the accidents that can happen to strangers on premises where the householder himself can move with assurance and safety in twilight or even darkness. Must the doctor be his own "usherette"? If he can get no domestic assistance, he sends his patients down the stairs at his own, as well as at their, peril.

The Sound Disposing Mind

A generation ago there was an effective challenge in the courts to the will of a testator who had taken the precaution of having it attested by no less than four medical practitioners. Perhaps that anxious circumspection was enough in itself to cast doubts upon his "sound disposing mind." Since that date Parliament has passed the Inheritance (Family Provisions) Act, 1938, which enables husbands, wives, unmarried daughters, infant sons, or other incapacitated children of the deceased to apply to the courts to alter the will where it is found not to have made "reasonable provision" for their maintenance. A few weeks ago the judges made the interesting decision that these applications under the 1938 Act must not raise the issue of the soundness of the testator's mind. Mr. Justice Vaisey, when hearing one such case, announced that he and his brother judges were agreed that in this context the question of the testator's unsoundness of mind, or even his want of lucidity of mind, could not possibly be entertained. As reported recently by the *Solicitors' Journal*, the learned judge observed that unsoundness of mind might be the reason why the will was in a peculiar form; it might be the reason why the will was unintelligible; but that was not the issue in applications under the Act. The Act directs the court, among other things, to "have regard to the testator's reasons, so far as ascertainable, for making the depositions made by his will," or for not making other provisions for his dependants' maintenance. Unsoundness of mind, said the judge, is not a reason; it is a lack of reason.

Without speculating how far this ruling would surprise the legislators who sponsored the Act of 1938, we may note that the judges, while purporting to prescribe a rule of practice, occasionally manage to mould the substance of the law. However that may be, the suggestion of weakness of mind is henceforth to be excluded on applications to secure some better provision for the maintenance of dependent members of the family of the deceased, though the absence of a "sound disposing mind" can still be relied upon as a ground for upsetting the will altogether.

In England Now

A Running Commentary by Peripatetic Correspondents

AT daybreak, after driving all night, the field ambulance convoy crossed the Chindwin at Kalewa. All day our vehicles struggled over the steep dusty Schwegyin sector. Many free-running vehicles, whose drivers had recovered sufficient strength to proceed, dovetailed themselves into our convoy so that it was soon difficult to carry out a running check. As the sun set we drew off the road in thick teak forest. My transport officer reported all present and correct except for the two cook's lorries which had failed twenty miles back. I decided to meet the emergency by ordering an issue of biscuits and half a tin of self-heating soup per man. For the information of those who are as ignorant as we were, the latter consists of a tin of soup into which is built a core of solid fuel. The instructions invite one to pierce the lid in two places before applying a match to the central wick. Within two minutes the soup is boiling merrily and can be poured through one of the pierced holes. One requires no advanced scientific acumen to realise that the holes are at least desirable for the escape of steam. Jake, the tall and impressive commander of "A" Company, took his tin into the ambulance car in which he had been sitting. Without reading the instructions he lit the wick. He was fortunately standing at the door when the tin exploded. The inside of the ambulance and the outside of Jake were covered with an even film of ox-tail soup.

We are sending this new method of interior decorating to Mr. Bevan and it is big-hearted Jake's suggestion that any proceeds will go to the P.R.I. He got a new battle-dress out of the Quartermaster and nature is slowly replacing the skin. Our unit Nathaniel Gubbins, who never misses an opportunity, sent me a note. "Please Sir, Margaret's father wants to know if self-sodaing whisky cannot be provided instead."

* * *

It's those drains again. Having been dogged by dirty smells throughout the length and breadth of Italy, it is discouraging to find them running wild in this land of progress. By now, surely, the Admiralty ought to have learnt about drains, but they still seize an old and tottering mansion, just able to cope with the Squire and his occasional guests, fill it to overflowing with "personnel," and conveniently forget about the drains until the atmosphere is strong enough to reach Whitehall.

After one or two half-hearted attempts at coming to an agreement, with the taking of specimens and the sampling of atmosphere, ending in a pious hope that the situation would somehow settle itself, a real show-down has been staged, the Squire being apparently quite willing to see us all drown in our own excrement but being seriously concerned over the health of his herd of cattle.

The Naval party was led by the Commander in jovial and nautical mood, backed by the Queen Bee of the local Wrens, blonde, beautiful, and very much on her dignity; the doctor, who had spent the previous night buffing up his public health, finding that the only volume on the subject entirely ignored the sailor ashore but went into the fascinating details of the mechanisms of various sea-going appliances; and an engineering representative. The Squire was supported by a dangerous-looking legal gentleman, by the agent, and by the local sanitary man.

The question of pollution was beyond all possible doubt. How the bacteriologist could have counted those thousands of colonies was a bit of a mystery, but even without his reports the malodoriferous atmosphere was penetrating into the comfortable office in which the parties met, and the Navy felt the scales were loaded against them. The Squire showed a particular interest in the fate of typhoid bacilli after they had been swallowed by the cow; did they appear in the milk? The doctor bluffed his way through that one by saying he thought it quite possible, though reference to a large tome on agriculture could find no opinion on the subject.

"And what about the grass; isn't that contaminated?" asked the Squire. "I remember when I was in China," replied the Commander, in true Brains Trust style, "the Chinese prized this material for their crops, so I don't see why your cows should not grow fat on the grass. Besides, if the Chinese become immune to these damn diseases, why can't your beasts?"

The Squire by now had sized up the opposition, and he directed the force of his attack at the doctor, who was trying to hide behind the engineer. "Are your pipes trapped?" he demanded. "Sewage gas is dangerous, I know, and you are running the risk of serious outbreaks of diphtheria, chickenpox, mumps, and measles." A lot of this was news to the doctor, but he had a vague picture of S-bends and air-locks, so he assured the Squire that all the pipes were of the latest design and that there was no particular affinity between sewage gas and the Klebs-Loeffler bacillus.

Meanwhile a battle was developing between the agent and the engineer about the site of the proposed sewage plant. The engineer was naturally intent on placing it in a position that would be most economical in material and labour, but unfortunately this was just below the magnificent terrace, pride of the family for generations. The agent was explaining that it was false economy, since the plant would have to be removed before anyone in their senses would live in the house.

At this point someone rashly remarked that a stream of concentrated sewage had overflowed from the Wrennery and poured down the village street a couple of days before. The engineer was quick to point out that there had been heavy rainfall at that time, while the Queen Bee registered the appropriate horror.

"I cannot see any excuse for that," said the Commander. "Please inspect your tanks in the morning, Mam, and report their state to me at 0900." "Ay, ay, Sir. But for me to have to inspect drains at 8 in the morning is the absolute bottom." "That's just about right," roared the Commander, amid the general guffaw. "And in future I shall send a sailor round with a lead line twice a week to take soundings." "Very good, Sir, but don't ask him what he finds on the bottom or he might tell you."

The meeting broke up in disorder.

* * *

How widely is this column read, how far afield it travels! Some weeks ago I wrote bemoaning the deterioration of the strawberry, and my reward has been most unexpected and gratifying. All sorts of kind people took to writing letters. The editor of the *Countryman* played a hand, and the long and short of it is that I have now got some news to impart. A Very High Authority in the strawberry world says: "There are still a few of the old strains and varieties of strawberries maintained in large private gardens, but owing to virus diseases they dwindle every year. I know of no source which I could recommend you to apply to for such choice types as Dr. Hogg and Waterloo. As you know, the Minister of Agriculture is only sponsoring the coarse low-grade Huxley* as being the easiest to grow and maintain." There! The next step is for us all (I mean all of us who share a passion for real strawberries) to hunt systematically for growers of Dr. Hogg and Waterloo, and to report from time to time in these columns. (The Editor permitting? I'm sure he will.)

I can give you another instance of the way in which this column gets around. On another occasion (Jan. 27, 1940, to be precise) I had occasion to lament the national lack of policy regarding tuberculosis during the early days of the war. Concerning the inevitable increase in its incidence I wrote: "It is true that quite advanced cases of pulmonary tuberculosis are being passed into the Army so long as they present no stethoscopic signs, and that a number will perish in military hospitals; but against them, thousands of consumptives have been evacuated from their sanatoria to tenements hermetically sealed during the hours of blackout, where they are sowing the infection quietly and efficiently . . ." Strong words? Yes, but in their context, obviously satirical. But they didn't sound at all satirical, they sounded perfectly frightening (to me, at any rate) when quoted practically word for word at 11 PM the following night by Lord Haw-Haw.

* * *

A surgeon was called in by the family physician to see a woman who had an inoperable carcinoma of breast which had not responded to X-ray therapy. He could make no suggestion regarding treatment, and told the relatives that the prognosis was hopeless. He then saw the patient again. She said, "Doctor, I know what is going to happen to me, I am going to die." The surgeon replied: "Yes, probably, but I am not going to condemn you. Miracles still occur though today we call them errors of diagnosis."

* Neither of the ones you know.

Letters to the Editor

BIOLOGICAL DANGERS FROM ATOMIC FISSION

SIR,—The official account of the development of atomic energy [1] emphasises that "the questions involved are not technical questions; they are political and social questions" (p. 136). But the employment of nuclear fission on a large scale also involves biological problems which cannot be solved by any form of political or social control, even though atomic energy may be used for industrial purposes only. These problems have not been considered adequately and frankly in official statements, or in public discussions. I have been hoping for a lead from biologists or medical men more competent than I am to judge these matters; but since they have mostly remained silent, I venture to bring into the open some questions which first arose when an atomic bomb was dropped on Japan, but which have become more insistent since the official account has become available.

The account not only acknowledges, but emphasises, that nuclear fission produces intensive radioactivity in the pile and its surroundings (e.g., pp. 16, 38, 70–72, & 91). The radioactive fission products differ greatly with respect to their half-lives; but some decay so slowly and are so active that the idea was developed (p. 38) to use them like a "particularly vicious form of poison gas." The fission products produced in *one day's run* of a 100,000 KW chain reacting pile might be sufficient to make a large area uninhabitable.[2] Defensive measures (the nature of which is not disclosed) against the possible use of radioactive poisons by the Germans were planned (p. 39).

The radioactive fission products are not retained in the pile; from the account it appears, for instance, that the operation of the pile results in the dispersal (into the atmosphere) of radioactive material through stacks, which draw the radioactive gases from the plant itself (p. 72). The account briefly refers to the need for satisfactory stack operation, lest surrounding territory should be endangered (pp. 72, 91). Similarly, the account discusses the problems arising from the radioactivity imparted upon the coolant (p. 68); a large plant may consume as much water for cooling as a fair-sized city, and this water must be returned to its source, or otherwise disposed of (p. 70). Lastly, the separation of plutonium, which emits alpha particles and is one of the most toxic substances yet produced (p. 72), involves the processing of large quantities of radioactive fission products.

In view of the dispersion of radioactive material by a constituent process (e.g., dispersion of stack gases) the question of biological effect arises. There is no need to review the effects of intensive radiation upon human subjects; for many of these effects are generally known, and they can be guarded against by shielding the piles, control of clothing, &c.—although the account recognises that insidious toxic effects may have established themselves before manifest signs appear (p. 90). But in addition to the more obvious dangers, other biological effects of indiscriminate scatter cannot, to my knowledge, be excluded at the present moment.

Firstly, radiation may affect spermatogenesis at exposure levels at which it does not completely inactivate the seminiferous epithelium. Secondly, radiation may affect the differentiated gametes, and while not necessarily preventing fertilisation may cause early fœtal death. Thirdly, radiation may produce genetic changes. The genetic changes have, of course, been studied mostly in insects; but while it would be unjustified to predict the production of a subhuman mutant by atomic energy, the dysgenic potentialities of scattered radiation could only be discounted on the basis of experiments and observations extending over long periods.

The account, while repeatedly emphasising the dangers to health, refers only briefly to biological problems (e.g., pp. 74, 75, 84) and to protection against health hazards (p. 89); it does not discuss the former, and does not precisely describe the latter. It seems, however, that the standards for protection were based upon actual individual health only, and did not take into account delayed or genetic effects.

This risky procedure was of course inevitable in a race against time. No such urgency exists any longer, and before any country commits itself to further industrial projects concerned with nuclear fission, a frank discussion *in public*, and not only in committees of experts briefed by their governments, should be encouraged. Our government should give permission to any person having knowledge of the biological effects of nuclear fission and related subjects, to disclose the nature of these effects; thus public opinion may be adequately informed and able to decide whether any group should be allowed to embark upon atomic ventures.

It seems not impossible that frank disclosure of available knowledge will throw doubt upon the admissibility of the industrial employment of nuclear fission for whatever purpose. For it will hardly be maintained that any country has the right to scatter radioactivity, in war or peace, for any purpose whatever, and thus to endanger the habitability of the planet or the nature of its inhabitants.

London, W.1. B. P. WIESNER.

1. Smyth, H. D. Atomic Energy. A general account of the development of methods of using atomic energy for military purposes under the auspices of the United States government. Reprinted by H.M. Stationery Office, 1945. Pp. 143. 2s. 6d.
2. In fact the release of such activity accompanied the explosion of the atomic bombs (p. 127); but it is claimed that "practically all" the radioactivity is carried upwards by hot air, and that even with low elevations of explosion only a "very small fraction" of the radioactive products released is deposited on the ground below the bomb. No data relating to the duration of uninhabitability are given by official sources. The half-life of plutonium is 50 years.

WHITHER MEDICINE?

SIR,—I hope Dr. J. Grieve's letter will be given the attention that it merits, both in our medical schools and in the profession as a whole. Sound practice depends directly on sound theory. Modern medicine has not taken any account of modern philosophy. The matters discussed for example in Broad's *Mind and its Place in Nature* are the basic problems of modern medicine. Recent discussions of the "psychosomatic theory" seem to reveal the poverty of the philosophical equipment of doctors both in this country and in the United States. An irrational empiricism which masquerades as "science" guides thought, when it does not mislead it.

I wonder whether the time is ripe for the formation of a section or group for the study of medical theory and philosophy? Most of us will need to learn the elements of philosophy; but there are a number of doctors who are already working (more or less in isolation) upon this fundamental medical discipline.

Worcester. HOWARD E. COLLIER.

PENICILLIN IN PNEUMONIA

SIR,—In their discussion on the comparative effect of sulphonamides and penicillin in pneumonia (Dec. 22, p. 805) Anderson and Ferguson express surprise at the failure of penicillin to accelerate resolution of the pneumonic consolidation. They suggest that ischæmia of the vessels may prevent the therapeutic substance reaching the consolidated alveoli satisfactorily, at the same time preventing adequate absorption of the exudate. There is, however, the alternative method of administering penicillin to pulmonary cases by means of an aerosol inhaler. So far this has been found most useful in reducing the quantity of sputum in chronic lung conditions such as bronchiectasis, particularly in the preoperative stages, but theoretically it seems possible that it might accelerate resolution of a pneumonic consolidation. The Collison Inhaler, as supplied by the Inhalation Drug & Apparatus Co. Ltd., works on the principle of oxygen bubbling through an aqueous solution of penicillin, producing a fine moist spray which is inhaled through a mask. This spray not only reduces the number of organisms in the sputum but also moistens the air-passages, so diminishing the tenacity of the sputum and making it easier to expectorate. It may be found that consolidated lung, particularly that seen in lobar pneumonia, is not sufficiently penetrated by the spray to have much effect, but this is less likely to be the case in bronchopneumonia, and it is in the latter condition that poor resolution leading to bronchiectasis is to be feared.

London, W.C.1. C. ELAINE FIELD.

DARK-ADAPTATION AND PSYCHOLOGY

SIR,—Mr. E. W. Godding is a little unfair in quoting me (Dec. 29, p. 863) as saying that night-blindness "was thoroughly investigated from every aspect except the psychological—the only one that mattered."

The statement was not general, but was specific to an epidemic of hysterical night-blindness in the 1914–18 war, and with this omission corrected I must adhere to the statement Mr. Godding calls misleading. The condition was investigated by the best ophthalmological talent in France, Belgium, and Germany, its true nature being missed. I gave a survey of the investigation and its futile results (*Proc. R. Soc. Med.* 1933, **26**, 655), and recommend Mr. Godding to read it. In this country ophthalmologists or physiologists, or both, repeated the mistake a quarter-century later. Being apparently ignorant of that psychological factor concerning which Mr. Godding so airily remarks that its importance is obvious, they unwittingly fostered another epidemic of the hysterical disorder and had to be put right by psychologists. In face of these episodes it is rash of Mr. Godding to speak of my preoccupation with the psychological aspect of the phenomenon "to the exclusion of all others." I once received, from competent teachers and as a part of the normal curriculum, a training in physiology—including the physiology of vision—and pathology. Was Mr. Godding as fortunate in regard to psychology and psychopathology? When and where did he learn of the "psychological factor" in dark-adaptation? Was it before or after the work of Wittkower and his colleagues in 1941? What can he tell us about it now?

It is an old experience of mine, when I point out that some disorder is a hysterical mimicry of physical disease, to be showered with lists of physical elements in the disease, as if I didn't know about them. So Mr. Godding's shower has nothing original for me. I generally answer with a parable; here it is:—

A nocturnal reveller clinging to a post looked up at the yellow globe surmounting it and exclaimed "That's a very tall policeman!" "Come away," said his companion, "that's a Belisha beacon." "Don't care what you say," replied the first one; "there *are* some very tall policemen." For the time being I am not interested in the very tall policemen to whom Mr. Godding draws my attention, however important they may be on other occasions.

London, W.1. MILLAIS CULPIN.

ASEPTIC NECROSIS AFTER PENICILLIN THERAPY

SIR,—The paper by Wing-Commander Nelson-Jones and Squadron-leader Williams, in your issue of Dec. 22, draws attention to the dangers of the intramuscular penicillin drip. Now that penicillin is becoming more generally available it is desirable that the pros and cons of the various methods of administration should be weighed up. For this reason I venture to give some figures as to the relative frequency of abscesses.

During the year 1944, 1051 cases were treated with penicillin at this hospital; of these, 267 were treated by intramuscular drip, either with the 'Eudrip' or with an apparatus devised and made locally. The remaining 784 were treated by intermittent intramuscular injections. The penicillin solution was prepared with strict aseptic precautions in a bacteriological cabinet kept specially for the purpose. The same brand of penicillin was used throughout. The site of injection was, in each case, on the outer side of the middle third of the thigh. The drips were arranged so as to deliver 120 c.cm. in 24 hours, and later this was reduced to 60 c.cm. The needle site was changed daily. In spite of these precautions 17 abscesses occurred, which for the most part were sterile at the onset but became contaminated with penicillin-resistant organisms. In those few cases which were examined, section of the abscess wall showed generalised fat-necrosis. Of the remaining 784 receiving intermittent intramuscular injections, only 1 developed an abscess. Nevertheless, others developed a diffuse and brawny œdema and erythema, particularly when the injections were placed close together. The penicillin solutions for these cases were prepared in 20 c.cm. screw-capped bottles containing 10,000 units per c.cm.

The points in favour of continuous intramuscular injection are, of course, legion. These may be summarised as follows:

(1) Strict aseptic method of penicillin therapy can be maintained continuously.
(2) Blood level of penicillin can be accurately gauged.
(3) The patient avoids being awakened and subjected to multiple injections of an unpleasant nature.

Against these are:

(1) The difficulty in providing man-power for servicing and maintaining sufficient apparatus for constant use.
(2) That rubber tubing may cause a serious fall in penicillin potency.
(3) The patient may complain of being "tied up."
(4) The danger of abscess formation at the site of inoculation.

In favour of the separate and intermittent injections of penicillin are:

(1) Freedom from abscesses.
(2) It is easier to continue therapy, and less man-power is required.

Against it are:

(1) The increased importance of immediate sterilisation, and strict aseptic precautions.
(2) The dislike of the patient for frequent and sometimes painful injections in spite of combined local anæsthesia.
(3) Blood penicillin levels are inclined to vary.

R.A.F. Hospital, Wroughton. E. M. DARMADY.

PROSTATECTOMY

SIR,—Mr. Hamilton Bailey has done me the honour of an early comment on my retropubic prostatectomy, and has asked certain pertinent questions (Dec. 15 last). I note that throughout his letter he elects to use the term *prevesical prostatectomy*, as employed by Jacobs and Casper, in preference to that which I coined, and which I feel is more accurate and more descriptive. All suprapubic prostatectomies, excluding the little used transperitoneal route, are via the prevesical space, but in this extravesical approach the major part of the operation is conducted in the retropubic space, caudad to the bladder, and so is scarcely prevesical.

He states that he is puzzled as to how my operation differs from that described by the American authors. A study of their report clearly shows that they set forth to preserve the urethral canal intact, in which incidentally they failed, and by their technique they were able to deal only partially with the middle lobe. They admitted that the operation they envisaged was only applicable to certain types of obstruction, and in fact published a single case-report eleven years ago. As far as I can ascertain they have made no subsequent publication. I have proved to my satisfaction that in cases of pure extravesical lateral lobe involvement it is possible to leave the urethra intact, but that its blood-supply is inadequate, and it later sloughs in part. Moreover, the inevitable initial hæmatoma collecting between the urethra and the sutured capsule has faulty drainage. Credit for priority in the actual approach, as I mentioned in my article, appears to belong to van Stockum, who, as far as I know, was the first to describe a suprapubic extravesical prostatectomy, albeit he packed the prostatic cavity, and drained the bladder by cystostomy. My operation secures as complete a prostatectomy as in the classical transvesical procedures, and avoids opening the bladder.

Mr. Bailey asks why I, hitherto an advocate of endoscopic resection for the fibrous type of obstruction, have employed an open operation in two such cases. The reasons were that I wished to demonstrate that my retropubic procedure was applicable to all types of case, and that I presented a *consecutive series*. I still believe that, granted the urethra is of sufficient calibre to accommodate the resectoscope available (and it frequently is not), and even more important, that the operator is competent to perform a satisfactory resection, the endoscopic approach is that of choice in those cases of fibrous obstruction. There are still such cases not fortunate enough to fall into the hands of a skilled resectionist. Mr. Bailey then inquires whether the retropubic operation can be carried out as expeditiously and safely as a Freyer enucleation when a preliminary cystostomy has been established. The answer is not as

expeditiously, but sufficiently so, and, I believe, with a safer and incomparably easier postoperative course in most cases.

With reference to the last paragraph of Mr. Bailey's letter, he cannot but be aware that even a nicking of the periosteum of the pubis in bladder or prostatic surgery may lead to a chronic osteitis, and I shudder to think of the sequelæ of his suggested osteoplastic trap-door. Let me stress that the retropubic space is neither deep, dark, nor dangerous.

Mr. Irwin appears to labour under the disadvantage of not having read the "description of a similar operation" by the two Italians in the monograph he elects to mention. Theirs is a literal translation of the case-report of Jacobs and Casper, and indeed purports to be such, being in inverted commas. No comments are offered, and there is no indication that these authors have ever employed it. It appears under the title of "Other Methods of Prostatectomy," and follows the archaic combined perineo-suprapubic method of Nicolle.

Mr. Irwin's figures, too, are remarkable. Vital statistics show that in a sufficiently large series of men of 70 years (a fair average for prostatectomy cases), one in every hundred will die each month; so that considering a period of seven weeks (again a fair average for the two-stage operation he so ardently advocates), 1·75% may be expected to die irrespective of hospitalisation, to say nothing of a major operation. His mortality of "about 1·6% at present" is a great achievement, if secured over a large enough series to be statistically significant.

London, W.1. TERENCE MILLIN.

SIR,—A new method of removal of prostatic obstruction is apt to start a wave of enthusiasm which creates the hope that the new technique will displace all the procedures which have gone before. The inevitable ebb generally leaves behind plenty of evidence that the innovation has after all a much more restricted scope than was originally claimed. For example a state of chronic urinary infection which is not uncommonly encountered after transurethral resection is a reminder of the limitations of this procedure, which however most of us use in selected cases.

The fact is of course that every method of prostatectomy so far devised has its weaknesses; and this is the reason why we turn eagerly to any new technique that presents itself in the hope that the perfect operation has at last arrived. It is the combating of the two formidable enemies, hæmorrhage and sepsis, with which we are continually concerned; and while we must strive to the uttermost to prevent them from appearing in the first instance, we must also avail ourselves of the best means possible of dealing with them when they do arrive.

Hæmorrhage and sepsis each serve as a handmaiden of the other; where one is, the other may be expected to follow; and wherever a high standard of hæmostasis has not been obtained, the need for suprapubic bladder drainage may be said to exist. The suprapubic tube is a safety-valve which all prostatectomists have had occasion to be thankful for; for should pyelonephritis or secondary hæmorrhage develop during the convalescence, there is no better way of helping the patient, as a first step, than by improving the suprapubic drainage. The suprapubic tube is also a safeguard in combating infection which may occur as a result of testing for post-prostatectomy obstruction.

Preoperative urethral instrumentation is the cause of much infective mischief after the prostatectomy. A recent cystoscopy, an indwelling catheter, or even a single catheterisation may be responsible. Infection of the already pathological prostate is not only the usual complication of such an intervention but is the commonest antecedent of ascending pyelonephritis in the male.

Post-prostatectomy indwelling catheter drainage has an added danger; this is urethral stricture, and its occurrence has a direct relationship to the size of the catheter, and the length of time the procedure has been employed.

The lessons I have learnt from committing all these faults have caused me for some years now—whenever it is practicable—to carry out the first instrumentation of the patient on the operation table, as an immediate preliminary to prostatectomy; on this occasion cystoscopy is carried out and the residual urine is tested. Such a routine certainly removes the danger of setting up a prostatitis. The low incidence of postoperative complications when this procedure has been followed has made a pleasant contrast with events in my cases when instrumental investigations were carried out within several weeks of the prostatectomy. With intravenous urography at our disposal as an excretion test, there is certainly no need for urethral instrumentation for such a purpose.

The aforementioned experiences in both one-stage and two-stage cases prevent me from subscribing to the view that there are special infective dangers in a carefully conducted transvesical prostatectomy followed by suprapubic drainage.

Thus in cases of retropubic prostatectomy where this need arises, to prolong bladder drainage by way of the urethra, the prospect of urethral stricture would be a real one.

When slow decompression is necessary, with the choice of several excellent trocars used in conjunction with Malecot tubes, a watertight suprapubic decompression is a simple accomplishment, and obviates the special dangers of an indwelling catheter. In my hands this method has been the means of saving many bad cases with high blood-ureas; and I strongly recommend it to those who have not practised it.

In two-stage prostatectomy the immunity following the first stage, against alarming infective processes in the second, in the great majority of cases makes the second operation a smoothly-running affair, in what was originally a worrying case; but sound judgment is always needed in deciding how long to wait between the two stages.

There are of course a number of complicating conditions of prostatic obstruction which require the bladder to be opened, such as clot-retention, a vesical diverticulum, initial vesical sepsis of a high degree, and large bladder stones. But apart from these requirements, and in spite of whatever place retropubic prostatectomy will take in the future, one may say that such excellent results can be obtained by a well-conducted one-stage or two-stage transvesical prostatectomy that this method is unlikely to lose its status as a sound surgical procedure. If retropubic prostatectomy is going to be the answer to all our prostatectomy worries, it is assured of a warm welcome; but we must guard against the temptation of allowing the attraction of a quick convalescence to jeopardise the ultimate safety of the patient.

Mr. Irwin has referred to his excellent mortality-rate at St. Paul's Hospital (no death in 55 consecutive cases). I might add that the mortality for the last 100 suprapubic prostatectomy cases at this institution is 1. The proper emphasis to put on this result is to call attention not only to operation methods but to the inestimable value of a well-organised and thoroughly trained team who are responsible for the after-treatment. I personally cannot speak too highly of the faithful and competent little band who have contributed so much to the success we have had at St. Paul's Hospital.

London, W.1. H. P. WINSBURY-WHITE.

MICROFILM AND MEDICAL LITERATURE

OUR annotation last week (p. 856) said that during the war the Royal Society of Medicine has been "sending out microfilm reproductions of books and papers that could not otherwise have gone overseas." We understand that in fact they have never sent out books in this way, but only individual papers extracted from journals. In their new programme (outlined by Mr. G. R. Edwards in his letter last week) they do not propose to film journals until they have (1) ascertained that the journals required by the libraries are not obtainable in print, and (2) have secured permission from the publishers of the journals.

THE following organisations recognised by the Board of Registration of Medical Auxiliaries have amalgamated to form the Society of Chiropodists: British Association of Chiropodists, Chelsea Chiropodists' Association, Chiropody Practitioners (N.I.Ch.), Incorporated Society of Chiropodists, and Northern Chiropodists' Association. The new society will take over the functions of the Chiropody Group Council in relation to the Board of Registration of Medical Auxiliaries. It may be addressed at 21, Cavendish Square, London, W.1.

Public Health

C.P.H. and D.P.H.

THE General Medical Council has amended its rules governing courses of study and examinations in sanitary science, &c., so as to introduce a certificate in public health of a lower standard than the diploma. The council points out that although only medical officers of health and supervisors of midwives are by law required to hold a D.P.H., yet other specialised posts in many branches of public-health work have in fact become restricted to holders of the diploma. This has meant that doctors have spent time and energies in acquiring their D.P.H. when they might better have been employed in gaining experience and perhaps qualifications in their own special work.

From now on a candidate for the D.P.H. will have to take (*a*) a preliminary course in preventive and social medicine, covering one academic term of ten weeks; (*b*) a preliminary examination, on the results of which a "certificate in public health" will be granted by the examining body; (*c*) a final course in preventive and social medicine, covering five months of whole-time or 550 hours of part-time study; and (*d*) a final examination at which the candidate must produce a day-book as evidence of work done during his final course, and a dissertation on an approved subject. Candidates for the certificate will take only the preliminary course and the preliminary examination. In general, the council recommend that candidates for the certificate or diploma should not be admitted to the preliminary course until two years after qualification, though they suggest that the period should be reduced to one year for doctors who may in future be required to do a year of house-appointments between passing their final qualifying examinations and being admitted to the Medical Register.

INFECTIOUS DISEASE IN ENGLAND AND WALES

WEEK ENDED DEC. 15

Notifications.—Infectious disease: smallpox, 0; scarlet fever, 1753; whooping-cough, 1195; diphtheria, 575; paratyphoid, 1; typhoid, 6; measles (excluding rubella), 619; pneumonia (primary or influenzal), 969; cerebro-spinal fever, 44; poliomyelitis, 10; polio-encephalitis, 2; encephalitis lethargica, 1; dysentery, 313; ophthalmia neonatorum, 68. No case of cholera or typhus was notified during the week.

The number of service and civilian sick in the Infectious Hospitals of the London County Council on Dec. 12 was 1142. During the previous week the following cases were admitted: scarlet fever, 64; diphtheria, 51; measles, 20; whooping-cough, 34.

Deaths.—In 126 great towns there were no deaths from enteric fever or measles, 2 (0) from scarlet fever, 3 (0) from whooping-cough, 10 (0) from diphtheria, 42 (5) from diarrhœa and enteritis under two years, and 69 (6) from influenza. Figures in parentheses are those for London.

There were 2 deaths from whooping-cough at Birmingham. Liverpool reported 7 deaths from influenza, no other great town more than 4.

The number of stillbirths notified during the week was 213 (corresponding to a rate of 31 per thousand total births), including 21 in London.

WEEK ENDED DEC. 22

Notifications.—Infectious disease: smallpox, 0; scarlet fever, 1718; whooping-cough, 1100; diphtheria, 569; paratyphoid, 4; typhoid, 5; measles (excluding rubella), 623; pneumonia (primary or influenzal), 1166; cerebro-spinal fever, 43; poliomyelitis, 23; polio-encephalitis, 1; encephalitis lethargica, 1; dysentery, 230; ophthalmia neonatorum, 46. No case of cholera or typhus was notified during the week.

The number of service and civilian sick in the Infectious Hospitals of the London County Council on Dec. 19 was 1092. During the previous week the following cases were admitted: scarlet fever, 58; diphtheria, 60; measles, 11; whooping-cough, 29.

Deaths.—In 126 great towns there were no deaths from enteric fever or measles, 1 (0) from scarlet fever, 12 (1) from whooping-cough, 12 (1) from diphtheria, 58 (4) from diarrhœa and enteritis under two years, and 76 (6) from influenza. Figures in parentheses are those for London.

There were 3 deaths from diphtheria at Newcastle-on-Tyne. Manchester had 7 fatal cases of diarrhœa and enteritis, and Birmingham 6. Liverpool reported 7 deaths from influenza, Bootle 6, no other great town more than 3.

The number of stillbirths notified during the week was 227 (corresponding to a rate of 33 per thousand total births), including 14 in London.

On Active Service

CASUALTY

Captain WILLIAM LEE DONALDSON, M.B. Aberd.

It is officially reported that Captain Donaldson was killed in action at Singapore on Feb. 15, 1942.

AWARDS

C.B.

Surgeon Rear-Admiral C. E. GREESON, M.D. Aberd., R.N.

O.B.E.

Lieut.-Colonel D. A. McM. CRAWFORD, M.B.Edin., R.A.M.C.
Lieut.-Colonel G. T. HANKEY, M.B.C.S., R.A.M.C.
Major W. R. HENDERSON, M.B. Edin., F.R.C.S., R.A.M.C.
Lieut.-Colonel J. C. MACKAY, M.C., M.B. Edin., R.A.M.C.
Lieut.-Colonel D. H. THOMPSON, M.B. Birm., R.A.M.C.
Lieut.-Colonel T. H. WILSON, M.B. Lond., F.R.C.S., R.A.M.C.

M.B.E.

Major S. W. BARBER, M.R.C.S., R.A.M.C.
Captain P. T. COOPER, M.B. Camb., M.R.C.P., R.A.M.C.
Major G. M. R. DUFFUS, M.B. Aberd., R.A.M.C.
Major ROBERT HARVEY, M.B. Glasg., R.A.M.C.
Major C. W. HORNCASTLE, M.B. Lond., R.A.M.C.
Captain W. O. James, M.B. Edin. R.A.M.C.
Major P. D. C. KINMONT, M.B. Lond., R.A.M.C.
Major L. W. LAUSTE, M.B. Lond., F.R.C.S., R.A.M.C.
Major J. G. LAWSON, M.B. Durh., R.A.M.C.
Captain E. W. MACMILLAN, M.B. Edin., R.A.M.C.
Captain W. M. NICHOLS, M.B. Glasg., R.A.M.C.
Major B. H. PRICE, M.B. Camb., R.A.M.C.
Captain I. F. ROSE, B.M. Oxfd, R.A.M.C.
Major J. B. SHERMAN, M.B. Melb., R.A.M.C.
Major W. S. SYKES, M.B. Camb., R.A.M.C.
Captain DERYCK TAVERNER, M.B. Leeds, R.A.M.C.
Major A. W. WOOLEY, M.B. Brist., R.A.M.C.

M.C.

Captain ARTHUR BARBER, M.D. Lond., R.A.M.C.
Captain KITAINDA CALAPPA GANAPATHY, I.A.M.C.
Captain J. A. L. COOPER, M.R.C.S., R.A.M.C.
Captain N. J. CRAIG, M.B. Aberd., R.A.M.C.
Captain W. A. DEWAR, M.B. Glasg., R.A.M.C.
Captain A. M. GWYNN, M.B. Aberd., R.A.M.C.
Captain J. F. PANTRIDGE, M.B. Belf., R.A.M.C.
Captain J. R. PEREIRA, I.A.M.C.
Captain KELLOR MADHUSUDAN RAO, I.A.M.C.
Captain RAYASAM RAMACHANDRA RAO, I.A.M.C.
Captain T. B. SMILEY, M.B. Belf., R.A.M.C.
Captain J. S. WALTERS, M.B. Glasg., R.A.M.C.

MENTIONED IN DESPATCHES: R.A.M.C.

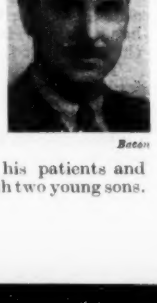
Lieut.-Colonel A. G. D. WHYTE, M.B.E.

Majors.—W. M. DAVIDSON, R. R. GORDON, M.C., B. B. HOSFORD, W. R. HUNTER, C. W. A. KIMBELL, J. PARKES, P. SMITH, A. McL. W. THOMSON

Captains.—J. H. ANNAN, M.B.E., R. E. BONHAM CARTER, A. M. BOYD, J. C. CAMERON, E. F. M. CARABER, J. E. S. CARMICHAEL, G. D. CRIBB, A. CROOK, G. I. DAVIDSON, G. FORREST-HAY, W. K. FREWEN, J. H. GIBSON, S. S. B. GILDER, R. W. GUNDERSON, D. R. HOLDEN, W. S. HOLDEN, D. G. HOWATSON, W. I. S. HUDLESTON, C. W. ILIFFE, J. A. JAMES, G. S. A. KNOWLES, D. W. LACEY, F. B. LAKE, N. R. LANSDELL, R. P. LAWSON, M.C., W. LUMSDEN, I. R. I. MACDONALD, L. MACLEAN, A. MACNAB, A. MIKELLIDES, N. E. MONTEVUIS, A. F. MURRAY, G. F. R. PARKER, R. POLLOCK, D. H. RANDALL, R. ROBERTSON, R. L. SANDERSON, I. SCHRIRE, C. A. SIMMONS, L. F. SMITH, I. O. B. SPENCER, I McD. G. STEWART, A. C. P. D. THOMSON, M.C., C. E. C. WELLS, R. M. WILTSHIRE
Lieutenant J. GOTTLIEB

MEMOIR

Captain G. P. NASH, who died from diphtheria at Brussels on Nov. 23, was born at Kingston in Canada in 1908 and graduated at Queen's University there in 1932. After postgraduate work in New York, Edinburgh, and Liverpool he settled in practice in Oxford shortly before the outbreak of war. In 1940 he joined the R.A.M.C. and served with the 11th Light Field Ambulance. Later as R.M.O. to the 142nd and 178th Field Artillery Regiments, he went through the whole Italian campaign, taking part in the landings in Sicily, Salerno, and Anzio. When he was taken ill he was on his way home for demobilisation. "George Nash," writes I.P.W.S., "had the informality of the Colonial and a happy boyishness of temperament which endeared him to his patients and colleagues in Oxford." He leaves his wife with two young sons.



Bacon

Parliament

ON THE FLOOR OF THE HOUSE

MEDICUS M.P.

THE House of Commons adjourned for Christmas in an atmosphere full of proposals for the future. There have also been big changes from war-time procedure to that of every day. Some controls have come off. You can set up a shop now—except a shop selling food—without a licence. The Ministry of Information is to disappear, but some of its good features are to be taken over by departments. Much direction of labour is to go, and as far as women are concerned nurses and midwives are the only classes who remain subject to direction. Another interesting release is that the House of Commons need no longer keep its secrets about its secret sessions held during the war. Some of these secrets concerned days, place, and hours of sitting, and were elementary precautions against air attack. But others related to matters of high policy, and the language used was, on occasion, very blunt. Records of the proceedings of these sessions, and of decisions reached, were made and kept at the time. But there were no records of speeches. It is suggested that in fact removal of the ban may be of more help to gossip than to history. There may be lively exchanges if anyone cares to publish what he himself and others said on, say, policy towards other countries, and if his fellow M.P. readers do not agree. It is very difficult to recall a speech made some time ago, and Mr. Eden, for example, has confessed that he does not remember at all what he might have said.

A big event of the last week of sittings was the passing of the Bill to nationalise the Bank of England by the Commons and the Lords. The Act is now law, for it has received the Royal Assent. The Peers took it very calmly. A bigger event was the discussion in the Lords of the American loan proposals, linked with Bretton Woods and the International Trade Organisation. This debate was of a high order, and Lord Keynes, who was our chief negotiator at Washington, made a speech which swept away opposition, so that Lord Beaverbrook got only 9 to support his opposition motion against 90 in favour. Lord Cranborne advised Tory Peers and others supporting His Majesty's Opposition to abstain from voting, since to defeat the proposals—which Tory Peers were in strength enough to do—would create more hardship for the people of the country. Without the loan, he said, we should not be able to purchase materials and machinery essential to the revival of our export trade and only to be obtained from America. We should have increased unemployment and increased suffering. And then Lord Cranborne crossed swords with Lord Beaverbrook. "There are," he remarked, "many people in this country who cannot command even the resources of the noble Lord, and their lot might very well be lamentable." To which Beaverbrook replied, "Is not the House of Salisbury very rich?" And Lord Cranborne riposted: "The very fact that the noble Lord and I have more than other people should make us more careful about the advice we give."

It is the existence of the high spirit in Parliament—and it is found in both Houses, in all parties, and in men of all social conditions—that makes the peaceful transformation of Britain from one stage of development to another possible by argument and Parliamentary discussion alone. And that spirit will be needed. For the nationalisation of the coal mines—the Bill is published—and the nationalisation of a large section of our industrial life, is certain.

Parliament will meet again on Tuesday, Jan. 22, for a strenuous series of sittings extending into July and August. The National Health Service proposals will come up in February, and the backbone of this will be the unified hospital service. The announcement of the ending of the sale and purchase of public practices has already been made. The original white-paper shows clearly enough what the main lines of the service must be. Discussion, which will be searching, between the Minister and representatives of the medical profession will not find its chief difficulty in the general plan, but in the shortage of accommodation and especially in the shortage of medical practitioners. Medical opinion in the House believes that the main lines of the scheme when it is announced will command the support of the medical and allied professions and of the general public alike.

Obituary

ALFRED BEUTHIN DANBY

F.R.C.S.E., F.R.C.O.G.

Mr. Alfred Danby, who died suddenly and unexpectedly at his home in Kidderminster on Dec. 9 at the age of 57, was well known in Birmingham and throughout the Midlands as a consulting gynæcologist and obstetrician.

He qualified in 1913 from Guy's Hospital where he was in the rugby XV. Soon afterwards he joined the Royal Navy and saw active service in the Dardanelles and Eastern Mediterranean campaigns. After demobilisation in 1919 he took his F.R.C.S.E. and went to Birmingham as resident surgical officer at the General Hospital. In 1921 he was appointed hon. assistant gynæcological surgeon to the hospital, and lecturer in obstetrics and gynæcology in the University of Birmingham, and a few years later he joined the staff of the Birmingham Maternity Hospital and became visiting gynæcologist to the Birmingham Mental Hospitals. He was elected a fellow of the Royal College of Obstetricians and Gynæcologists in 1935. A keen member of the Midland Obstetrical Society, he held office as its president. With the late Sir Beckwith Whitehouse he took an active interest in the work of the Lucy Baldwin Maternity Hospital at Stourport.

Whitlock

"He had," writes an associate, "a warm enthusiasm for obstetrics and was a careful surgeon with a high professional conscience and an understanding and sympathy for his patients. He spared neither time nor effort on their behalf. His loyalty to his colleagues and his interest in the welfare of the university and the hospitals which he served were salient characteristics of a pleasing personality. He had many friends and few enemies. He was rarely dogmatic and never aggressive, but when he had made up his mind on a matter of principle he would work for the objective with a grit and determination that were the admiration of all. His disarming and almost ingenuous manner enabled him to overcome the opposition of many and he was never uncharitable or ungracious. Teaching was not one of his strong points, but he was popular with the students and easily obtained their loyalty and coöperation.

"'Peter' Danby was at his best as a host in his own house, where the visitor was always made most welcome. He loved the companionship of his colleagues; he studied their personal tastes and was most solicitous for their comfort. He appreciated the good things of the table and was an entertaining conversationalist.

"In 1940 he developed a serious illness which rendered him a complete invalid for over two years, and he was never able to resume full work again. This illness he bore with outstanding fortitude and patience: he suffered much, but was never heard to grumble or complain. Although this illness prevented him from returning to an active professional life he continued to take a keen interest in the work of the university and the United Hospital, and rarely missed a meeting of the faculty or the medical committee of the hospital."

Mr. Danby married in 1929 Miss Victoria Arkell, and she survives him with four children.

DONALD DUFF

F.R.C.S.E., F.R.F.P.S.

Mr. Donald Duff, consulting surgeon to the Glasgow Royal Infirmary and professor of surgery at St. Mungo's College, died on Nov. 25 in his 73rd year. After school-days at Daniel Stewart's College, Edinburgh, and a short business career, he returned to his native Glasgow to take the Scottish triple qualification from St. Mungo's in 1901. He obtained the F.R.C.S.E. in 1904 and was elected F.R.F.P.S. a year later. At first attracted to gynæcology, he soon turned to surgery, and became assistant surgeon at the Glasgow Royal Infirmary. During the 1914–18 war he served as a surgical specialist in the R.A.M.C. and was for a time consulting surgeon in Malta. On his return he took up his work at the Royal Infirmary once more, and in 1923 he was appointed surgeon with charge of wards. Shortly before he retired in 1938 his health began to fail, but with characteristic determination he carried on. His interest in the work of the Royal Infirmary did not flag, and he was appointed to the board of managers, where his long practical experience proved of great value.

Duff was a good surgeon and in the theatre his technique was meticulous. An exacting chief, he was also most helpful to juniors. His special interests were bone surgery and abdominal work, on which he published several papers, though a busy practice left him little time. "Donald Duff devoted his whole life to surgery," writes W. T. D., "and he had little interest in matters outside his profession. Straightforward and sincere himself, he had no use for quackery or humbug. When presented with a problem, he carefully considered all the facts, and having made up his mind he acted boldly. His rather brusque manner was often misunderstood, but those who knew him well saw that it was a pose adopted to hide a kind nature and rather shy disposition. He occasionally found time for a game of golf, and in his usual way he got down to fundamentals, studying the various swings in terms of anatomy and physics. In all his actions and utterances he upheld the best traditions of medicine, and his help was given unsparingly to all who sought it."

THE death is reported on Dec. 22, 1945, of Mr. A. SEYMOUR HARDING, late secretary of the Royal Institute of Public Health and Hygiene. In 1912 Mr. Harding joined the Institute of Hygiene, becoming chief administrative officer in 1924. He continued as general secretary after the amalgamation in 1937 of the Institute of Hygiene with the Royal Institute of Public Health, until 1942 when he retired because of ill health. He was 64 years of age.

Medical Diary

Jan. 6 to 12

Tuesday

ROYAL SOCIETY OF MEDICINE, 1, Wimpole Street, London, W.1.

5.30 P.M. *Psychiatry*: Mr. Alec Rodger: Personnel Selection—By Whom?

Wednesday

ROYAL COLLEGE OF SURGEONS OF ENGLAND, Lincoln's Inn Fields, W.C.2.

5 P.M. Prof. Willem Noordenbos: Choice of Oblique and Transverse Incisions in Abdominal Surgery. (Moynihan lecture.)

ROYAL FACULTY OF PHYSICIANS AND SURGEONS, 242, St. Vincent Street, Glasgow.

4 P.M. Prof. R. A. McCance: Bread. (Finlayson lecture.)

ROYAL SOCIETY OF MEDICINE

4.30 P.M. *Physical Medicine*. Dr. F. H. Kemp: Detection and Evolution of Adolescent Deformities of the Spine.

MEDICAL SOCIETY OF THE L.C.C. SERVICE

4.30 P.M. (County Hall, London, S.E.1) Sir Allen Daley: presidential address.

Thursday

ROYAL COLLEGE OF SURGEONS OF ENGLAND

5 P.M. Mr. Ivor Lewis: Surgical Treatment of Carcinoma of the Œsophagus with special reference to a New Operation for Growths of the Middle Third. (Hunterian lecture.)

Saturday

EUROPEAN ASSOCIATION OF CLINICAL PATHOLOGISTS

10 A.M. (Glaxo Laboratories, Greenford, Middlesex): annual general meeting.

Notes and News

POSTGRADUATE TEACHING AT MIDDLESEX COUNTY HOSPITALS

THE British Postgraduate Medical School has been finding increasing difficulty in meeting the demands of graduates from the provinces, Scotland, Ireland, the Dominions, India, and the Colonies for systematic education in the fundamentals of medicine and surgery. Many of these graduates intend to take up consultant practice in their places of origin. The Middlesex County Council have been asked to help by arranging clinical classes in their hospitals, and the council's public health committee have decided that the class in medicine could well be held at Redhill County Hospital, and that in surgery at North Middlesex County Hospital.

The selection of students, collection of fees, &c., would be done by the British Postgraduate Medical School, where the students would spend one day each week on the more academic subjects. The course of instruction would run continuously, and could be joined at almost any time for a period of 3–6 months. Four days a week would be spent at the county hospitals. Each class would consist of about 10 students, and some 15–20% of the total would be men of colour. Students would be non-resident, though meals would be provided at the hospitals. Some augmentation of staff would be required at the county hospitals, but the University of London would presumably recognise some of their senior physicians and surgeons as approved teachers.

The scheme, if approved, will probably come into force in April, 1946. If it proves a success, it may well be extended to other hospitals in the council's health service.

ILLICIT TRAFFIC IN OPIUM AND DANGEROUS DRUGS

A REPORT has been issued from Geneva by the Advisory Committee of the League of Nations giving a summary of illicit transactions and seizures of narcotic drugs from July 1 to Dec. 31, 1941. Delay and default are attributed to the disturbance during the war years, but annual reports for the years 1942, 1943, and 1944 are now being prepared. Thus this important part of the work in the international control of commerce in drugs of addiction, though impeded, has not been allowed to lapse. It is noted that the variation in exchange-rates and currencies in the different countries rather invalidates statistical comparisons.

The report deals with illicit traffic and seizures in Hong Kong, Shanghai, India, Egypt, Palestine, Straits Settlements, Macao, Columbia, and the United States. The total figures for the year 1939, now completed by the secretariat, show that in that year 28,723 kg. of raw opium were seized, 851 kg. of "prepared opium," 201 kg. of morphine, 177 kg. of heroin, and 23,314 kg. of Indian hemp. In 1940 the largest seizures of raw opium were in India, Egypt, and Syria and the Lebanon, of morphine in Turkey, and of heroin in the United States. The quantity of heroin reported to have been seized in 1941 shows a reduction, chiefly derived from the International Settlement in Shanghai.

A SHORTER CATECHISM

WHAT is UNRRA and how was UNRRA created? We all ought to know, but in a world of initials many of us will be grateful to the information division of UNRRA for answering this and 49 other questions in their little book *Fifty Facts about* UNRRA. For good measure they have also given us some excellent photographs showing their organisation in action. The pamphlet is intended for general distribution and copies may be had gratis from 11, Portland Place, London, W.1.

A PLASTIC STETHOSCOPE

IN the 'Helvin' plastic stethoscope, manufactured by Hellermann Electric Ltd., Brewer Street, Oxford, the tubing and chest-piece are made of flexible plastic closely resembling rubber but said to be much more durable and less given to perishing. "What is more important," writes a physician, "is that it possesses far better acoustics than my own familiar implement, which had hitherto survived all challenges for twenty years. All sounds, besides being twice or thrice as loud (gauged by observing how many thicknesses of cloth were necessary to obliterate a watch-tick), were deeper in pitch and more resonant. This was confusing at first, but one soon got accustomed to it, and after a full day's trial at medical boards—in the usual noisy surroundings—there was no going back. One can heartily recommend this new instrument to medical students embarking upon stethoscopy, and to practitioners who are prepared to revise their standards of stethoscopic findings." The price is 27*s.* 6*d.*

University of London

Dr. Aubrey Lewis's appointment to the chair of psychiatry at the Maudsley Hospital has now been confirmed by the senate. As announced in our issue of Dec. 22, the London County Council will promote him to be director of clinical psychiatry at the hospital.

Dr. Lewis, who is 45 years of age, graduated M.B. Adelaide in 1923, and after holding resident appointments there went in 1926 to America to study psychiatry at Boston and the Johns Hopkins Hospital with a Rockefeller fellowship, which was later renewed to allow him to continue his studies in London (at the National Hospital, Queen Square) and in Berlin and Heidelberg. In 1928 he returned to London to work at the Maudsley Hospital with a research grant. Later he joined the staff and in 1936 he became clinical director. From 1935 to 1945 he was also consultant in psychiatry at the British Postgraduate Medical School, and he has examined for the Universities of London and Durham and for the D.P.M. of the Conjoint Board. In 1938, at the instance of the Rockefeller Foundation, he made an extensive tour of the chief European centres of research in psychiatry. He was a member of the expert committee on the work of psychologists and psychiatrists in the Services, which sat during 1942–44; he has lately acted as civilian consultant to the Royal Air Force; and he is a member of the recently formed Army Psychiatry Advisory Committee. He is also a member of the brain injuries committee of the Medical Research Council, the scientific advisory committee of the Wartime Social Survey, and the selection committee for Nuffield medical fellowships, and he has submitted evidence on psychiatric training to the Goodenough Committee. In his published work he has dealt with melancholia, cretinism, the heredity and the social effects of mental disease, and neurosis during the economic depression, in the Army, and in civilians in war-time.

The title of professor of applied physiology has been conferred on Dr. G. P. Crowden in respect of his post as reader in industrial physiology at the London School of Hygiene and Tropical Medicine.

Dr. Crowden, who is 51, was educated at King's School, Peterborough, and began his medical studies at University College, London, in 1913. At the outbreak of war in 1914 he was commissioned in the K.O.Y.L.I. and served in France as intelligence officer to an infantry brigade, being mentioned in despatches. In 1916 he was seconded as captain, R.E., to the Gas Services. In 1921 he took his B.SC. Lond. in physiology with first-class honours and was awarded a university studentship. He obtained the Conjoint qualification in 1925 and in the following year became assistant in the department of physiology at University College, where three years later he was promoted to a lectureship, and served as sub-dean of the faculty of medical science. In 1929, on the opening of the London School of Hygiene and Tropical Medicine, he was appointed lecturer in applied physiology, and later reader in industrial physiology, in the University of London. From 1928 to 1934 he was secretary of the nutrition committee of the Medical Research Council. He took his M.R.C.P. and his D.SC. in 1937. From 1931 to 1935 he was chairman of the council of the British Association for Physical Training, and in 1932 he published a book of lectures on *Muscular Work, Fatigue and Recovery*. He has also produced papers on the cost of a physiologically adequate diet, insulation against heat and cold for human comfort, artificial respiration, and muscular work in gas-protective clothing, and he contributed a chapter on personal hygiene to the 1944 edition of Jameson and Parkinson's *Synopsis of Hygiene*. For twenty years he has served the Research Defence Society as hon. secretary and editor of its journal, *The Fight against Disease*. He commanded the medical unit of the university O.T.C., and was mobilised in September, 1939, for service in the R.A.M.C. as lieut.-colonel in charge of training at a depot in Scotland. Later he became second-in-command at the R.A.M.C. depot, Aldershot, whence he proceeded overseas to command a general hospital in West Africa with the rank of colonel. During the war he was awarded the T.D. and appointed O.B.E. He was released from the Army last September.

Five public lectures on Pharmacological Chemistry will be given by Mr. F. Bergel on Tuesdays, at 5.15 P.M., from Jan. 15, in the physiology theatre of University College, Gower Street, W.C.1.

University of Durham

Squadron-Leader R. C. Browne, whose appointment to the new Nuffield chair of industrial medicine was announced in our last issue, is 34 years of age.

He obtained a second class in the honour school of physiology at Oxford in 1934, and the following year was awarded the Theodore Williams scholarship in pathology. After clinical work at Bristol he graduated B.M. in 1937 and took his M.A. the same year. Having held a casualty officer's appointment, he became house-physician to the professor of medicine at the Bristol General Hospital and then returned to Oxford as house-physician to the Nuffield professorial unit. In 1940 he obtained the M.R.C.P. and was awarded a Medical Research Council grant, which he held while working in the Nuffield department of clinical medicine. During the war he has served with the R.A.F.V.R. on full-time research duties for the Flying Personnel Research Committee, and has been working on the general problem of the relationship of health, performance, and the mechanical environment.

At a congregation held on Dec. 21 the following degrees were conferred.

M.S.—R. J. Rutherford, W. K. Yeates.

M.B., B.S.—Isabel Aitchison, Lilian Alexander, Jean E. Arkle, James Arkless, R. J. Belas, Eileen E. Cameron, Rachel Cameron, E. S. Clarke, Barbara E. Corlett, G. R. Cottrell, J. D. K. Dawes, R. J. Dias, Joyce Dixon, R. H. Etherington, Victor Franks, G. D. Fullerton, G. S. Graham, Jean A. Grant, V. F. Harrison, Joyce C. Harvey, Rita Hedley, G. L. Hindson, P. J. Hogg, W. F. M. Hudson,* A. S. Hughes, Patricia M. Hutchinson, A. C. Jenkins, Charles Johnson, William Latimer, Elizabeth Lawson, Sydney Levy, Mary Meikle, F. R. G. Mellor, Martin Menczer, Jean H. Mitchell, J. S. Noble, James Oldfield, A. C. Parry, Jean M. Paterson, B. E. Roebuck, W. M. Ross, C. B. S. Schofield, H. L. Simon, Jean D. Smedley, E. R. Smith, F. J. Spencer, N. B. Sprague, Kathleen M. Stevens, Mary Storrier, S. M. Szpiro, C. P. Tanner, T. C. Taylor, D. S. Thomson, J. N. Walton, D. D. Webster, A. E. White, Joan Williams, Maurice Wood, William Wood, K. D. Woolas.

* In absentia.

University of Bristol

As announced in our last issue, Mr. R. Milnes Walker, surgeon to the Royal Hospital, Wolverhampton, has been appointed to the newly established chair of surgery.

Mr. Milnes Walker is 42 years of age. He took the Conjoint qualification from University College Hospital in 1926 and was awarded the gold medal when he graduated M.B. with distinction in surgery and gynæcology at the University of London in the same year. He was again awarded the gold medal when he took his M.S. the following year, and in 1928 he obtained the F.R.C.S. After holding house-appointments at U.C.H., and visiting clinics on the Continent and in America, he became assistant to the surgical unit there till in 1930 he was appointed to the staff of the Royal Hospital, Wolverhampton. He is also consulting surgeon to the Wolverhampton and Midland Counties Eye Infirmary, to the Staffordshire, Wolverhampton, and Dudley Committee for Tuberculosis, and to the Birmingham Tuberculosis Service, and consulting surgeon to Hallam Hospital, West Bromwich, and Guest Hospital, Dudley. During the war he acted as group adviser to the E.M.S. Midland Region No. 9. A member of the court of examiners of the Royal College of Surgeons, he is also secretary of the Provincial Surgical Club. His published work includes papers on the removal of the lung, mediastinal lipomas, peritoneoscopy, and intestinal diverticula.

University College Hospital

The appointment of Dr. E. E. Pochin to the directorship of the department of clinical research has already been announced.

Dr. Pochin obtained a first in both parts of the natural sciences tripos at Cambridge and held the Michael Foster studentship in 1931. From Cambridge he went to University College Hospital, where he qualified in 1935, taking the M.B. in the following year, the M.R.C.P. in 1937, and M.D. in 1945. After holding house appointments at U.C.H. he became assistant in the department of clinical research in 1936, and a member of the scientific staff of the Medical Research Council in 1941. From 1941 to 1945 he worked in, and later directed, the M.R.C. physiological laboratory, A.F.V. school gunnery wing, at Lulworth Camp. A member of the Medical Research Society and the Physiological Society, his published work includes papers on exophthalmos and lid-retraction in Graves's disease, on pain perception and its delay in tabes dorsalis, on the effect of ischæmia, and on blood-volume determination. He is 36 years of age.

University of Liverpool

At recent examinations the following were successful:

M.D.—J. R. Hughes, C. McGibbon, H. Reid.

FINAL EXAMINATION FOR M.B., CH.B.

R. G. Thomas, L. F. Tinkler, Esmé M. Wren (with second-class honours); Audrey M. Ashcroft, N. L. Bailey, K. Baker, S. Beacon, D. T. Binns, R. Brearley, P. M. Bretland, Cécile N. Broster, J. H. E. Carmichael, Helen A. Cawson, A. D. Charnley, M. H. Clark, N. Coulshed, S. Croft, Pauline M. Dean, M. M. I. el Haddad, R. Elliam, H. C. Graham, E. A. Harris, F. G. Ince, R. W. Kennon, Barbara M. Killick, T. S. Law, Jean Learoyd, A. C. Levinson, T. R. Littler, J. A. O'Garra, A. E. Pritchard, Rachel M. Rawcliffe, G. P. Reed, H. Roberts, W. G. Roberts, P. W. Robertson, Olive R. Rodgers, L. Rosenbloom, H. H. Slack, Helen M. Taylor, L. Temkin, J. Ward, Joyce Watson, N. P. Watson, W. F. Wille, Aline N. Wynroe.

University of Birmingham

FINAL EXAMINATION FOR M.B., CH.B.

At recent examinations the following were successful:

J. K. Baird, D. H. Barnbrook, K. D. Roberts (second-class honours); R. J. Bennett, D. L. Crombie, J. C. Foster, J. C. Haworth, Rachel M. Hickinbotham, Gerald Jacobs, R. F. Martin, W. I. Murdoch, T. A. W. Parkes, F. C. S. Pearson, H. M. Rodger, Dorothy M. Tidmas, P. T. Walker.

Radiotherapy in Middlesex

The Middlesex County Council announces an interim organisation for radiotherapy in the county area. During the war patients have been treated at the county council's unit at the North Middlesex Hospital; and at the Mount Vernon Hospital, which has been staffed from the Middlesex Hospital under the E.M.S. scheme. It has now been arranged for radiotherapists from the Middlesex Hospital, under the direction of Prof. B. W. Windeyer, to make regular visits to the county-council institutions. Suitable cases will be transferred to the Middlesex Hospital, from which they will be returned on completion of treatment. A permanent arrangement will depend on the expansion of the Middlesex Hospital's present radiotherapy department.

Royal College of Surgeons of England

Sir WILLIAM COLLINS and Sir HENRY DALE, O.M., F.R.S., have been elected honorary fellows of the college. Sir William Collins has lately endowed professorships of anatomy and pathology at the college, and Sir Henry Dale has been associated with the college through his membership of the council of the Imperial Cancer Research Fund.

Royal College of Obstetricians and Gynæcologists

Regulations for admission of members have been modified by increasing the amount of special and general training required in the minimum period of three years that must elapse between the candidate's obtaining a registrable medical qualification and his application for admission to the membership. The modifications will apply to all candidates who sit for the membership examination for the first time in January, 1947, or thereafter. But candidates who have served as doctors in the Forces during the war may apply for permission to take the examination at any time under the regulations dated March, 1944. Details of the new regulations can be obtained from the secretary of the college, 58, Queen Anne Street, London, W.1.

When more facilities for training are available the college intends to increase the duration of the training for the membership examination to five years. Before the necessary regulations are introduced sufficient notice will be given to enable intending candidates to plan their course of training.

Prize for Work on X Rays

The Royal Society of Edinburgh will award in 1947 a David Anderson-Berry medal, together with a sum of money amounting to about £100, for the best recent work on the therapeutical effect of X rays on human diseases. Applications, which may be based on published and unpublished work, must be in the hands of the general secretary of the society, 22, George Street, Edinburgh, 2, by Dec. 1, 1946.

Lectures on Dairy Science

On Tuesday, Jan. 15, at 6 P.M., at the central laboratories of the Express Dairy Co., 133, Euston Road, London, N.W.1, Prof. H. D. Kay, D.SC., F.R.S., will give the inaugural lecture to a series of twelve lectures on Recent Advances in Dairy Science. Further information may be had from the principal of Chelsea Polytechnic, Manresa Road, S.W.3.

Tuberculosis Association

At a meeting to be held at 26, Portland Place, London, W.1, on Friday, Jan. 18, at 5 P.M., Dr. Norman Tattersall will deliver his presidential address on the Tuberculosis Service and the Future. Afterwards Dr. Jethro Gough will open a discussion on Pneumoconiosis of Coalminers, speaking on pathological changes in the disease, and at 8 P.M. Dr. Enid Rogers, the second opener, will speak on the incidence of tuberculosis in the disease. It is hoped to show a film on Methods of Dust Suppression in Coalmines.

Pharmaceutical Society of Great Britain

On Thursday, Jan. 10, at 7 P.M., at 17, Bloomsbury Square, London, W.C.1, the Harrison medal will be presented to Mr. R. R. Bennett, PH.C., who will afterwards give an address on the British Pharmacopœia.

Course on Mental Deficiency

The University of London extension and tutorial classes council, in coöperation with the Provisional Council for Mental Health, will hold a course on Educationally Subnormal Children and Mental Defectives, provided sufficient applications are received, at the London School of Hygiene, Keppel Street, W.C.1, from March 25 to April 5. Further information may be had from Miss Evelyn Fox, c/o the University Extension Department, 39, Queen Anne Street, W.1.

Research Board for the Correlation of Medical Science and Physical Education

The annual general meeting will be held at the Royal Institution, 21, Albemarle Street, London, W.1, on Wednesday, Jan. 16, at 2.30 P.M., when Dr. Frank Howitt, the chairman of the board, will preside. The speakers will include Sir Alfred Webb-Johnson, P.R.C.S., Mr. Aneurin Bevan, the Minister of Health, Air Vice-Marshal Sir Harold Whittingham, D.G.M.S., Air Ministry, Sir Reginald Watson-Jones, F.R.C.S., and Brigadier F. A. E. Crew, F.R.S. Last year at their general meeting the board produced the three-part report on Medical Science and Physical Education in their relation to Maternity and Child Welfare, Education, and the Services. This year the industry subcommittee, of which Brigadier Crew is chairman, will present the fourth part of the report on Medical Science and Physical Education in Industry. Tickets for the meeting may be had from Miss Bronwen Lloyd-Williams, 37f, Regents Park Road, London, N.W.1.

Royal Society of Arts

On Wednesday, Jan. 16, at 1.45 P.M., at the house of the society, John Adam Street, Adelphi, London, W.C.2, Sir Jack Drummond, D.SC., F.R.S., will speak on Famine Conditions and Malnutrition in Europe.

Return to Practice

The Central Medical War Committee announces that Dr. R. M. B. MACKENNA, F.R.C.P., has resumed civilian practice at 30, Rodney Street, Liverpool, 1.

Course for the D.P.M.

The usual course of lectures and practical instruction for a diploma in pyschological medicine will begin on Jan. 7 at the Maudsley Hospital, Denmark Hill, London, S.E.5. Further information may be had from Dr. W. W. Kay, Central Pathological Laboratory, at West Park Hospital, Epsom, Surrey.

THE Kodak film library, which was started by Messrs. Kodak Ltd. in 1930, has now been presented to the Royal Society of Medicine and will be operated by the society's film librarian.

Appointments

LYTLE, S. N., F.R.C.S.: temp. consulting surgeon, Borough General Hospital, Southampton.

RUSSELL STONEHAM, F. J., M.R.C.S., D.A.: senior anæsthetist, Birmingham Accident Hospital and Rehabilitation Centre.

WHAPHAM, EILEEN, M.D. Lond., F.R.C.S., F.R.C.O.G.: temp. hon. gynæcologist, Mildmay Mission Hospital, London.

Births, Marriages, and Deaths

BIRTHS

APPERLY.—On Dec. 18, in London, the wife of Surgeon Lieutenant P. R. Apperly, R.N.V.R.—a daughter.

BAKER.—On Sept. 18, at Cookham, Berks, the wife of Major W. H. J. Baker, M.B., R.A.M.C.—a son.

BARFORD.—On Dec. 17, at Redhill, the wife of Dr. L. J. Barford—a son.

BENNETT.—On Dec. 15, at Bideford, the wife of Surgeon Lieutenant D. H. Bennett, R.N.V.R.—a daughter.

CAMPS.—On Dec. 26, the wife of Dr. Francis Camps, of Harley Street, W.1.—a daughter.

CORBIN.—On Dec. 24, at Stourbridge, the wife of Dr. H. P. F. Corbin—a son.

CRAIG.—On Dec. 21, in London, the wife of Dr. J. W. Craig—a daughter.

FIELDING.—On Dec. 7, at Boston, Lincs, the wife of Dr. J. F. Fielding—a son.

LE CLERCQ.—On Dec. 25, at Harrow, the wife of Surgeon Lieutenant L. G. Le Clercq, R.N.V.R.—a son.

MARTYN.—On Dec. 18, the wife of Dr. M. King Martyn, of Cheltenham—a son.

MARTYN.—On Dec. 20, at Moreton-in-Marsh, the wife of Surgeon Lieut.-Commander D. Martyn, R.N.—a daughter.

MOREL.—On Dec. 19, in London, the wife of Mr. Mervyn Morel, F.R.C.S.—a son.

PELLY.—On Dec. 17, Dr. Salome Pelly (née Wordsworth), the wife of the Rev. R. L. Pelly, of Trowbridge, Wilts—a son.

ROBERTS.—On Dec. 21, at Inverness, to Dr. Maureen Roberts (née McWilliam), the wife of Surgeon Lieut.-Commander R. Howell Roberts, R.N.V.R.—a daughter.

RYCROFT.—On Dec. 25, at Exeter, the wife of Dr. R. N. Rycroft, M.C.—a son.

SPRINGETT.—On Dec. 29, in London, the wife of Dr. V. H. Springett—a son.

MARRIAGES

DAVIES—HUMM.—On Oct. 23, in London, John Victor Stewart Arlingham Davies, M.R.C.P., to Ailsa Joyce Humm (née Steven).

DUTTON—TWIST.—On Dec. 23, at Brentwood, Essex, Geoffrey Dutton, captain R.A.M.C., to Marjorie Twist.

INSLEY—HENDERSON.—On Dec. 21, at Edinburgh, John L. Insley, B.M., flying-officer R.A.F.V.R., to Morag L. Henderson.

RADFORD—IGGLESDEN.—On Dec. 22, at Bristol, Allan Philip Radford, lieutenant, R.A.M.C., to Rosemary Elizabeth Igglesden.

DEATHS

BALL.—On Dec. 21, 1945, at Carrickmines, co. Dublin, Sir Arthur Ball, Bt., M.D., M.CH. Dubl., F.R.C.S.I.

BECKETT.—On Dec. 23, at Shrewsbury, Hugh George William Beckett, M.R.C.S.

CLAPHAM.—On Dec. 20, Roderic Arthur Clapham, M.D., M.A. Camb., D.P.H.

CLARKE.—On Dec. 19, at Weobley, Hereford, John Stephenson Clarke, M.A., M.B. Camb.

DE MORGAN.—On Dec. 8, Harold Aylmer De Morgan, M.B. Lond., of Douglas, I.o.M.

EAST.—On Dec. 22, at Bagshot, Charles Harry East, M.D. Durh., formerly of Great Malvern, aged 84.

HOOPER.—On Dec. 23, at Weston-super-Mare, Arthur Winsmore Hooper, C.M.G., D.S.O., M.R.C.S., colonel R.A.M.C., retd., aged 76.

HOWARD.—On Dec. 27, at Upper Norwood, S.E.19, John Alexander Howard, M.D. Lond.

MACLEOD.—On Dec. 24, at London, Alastair Macleod, M.B. Edin.

MILLER.—On Dec. 13, at Nottingham, Conolly Stoupe Miller, M.B. Dubl.

RICHARD.—On Dec. 25, at Wollaton, Nottingham, George Herbert Richard, M.R.C.S., colonel late R.A.M.C.

SMITH.—On Dec. 20, at Ranelagh Avenue, S.W.6, John Percy Smith, M.R.C.S., L.D.S.

TURTON.—On Dec. 22, at Tunbridge Wells, Edward Turton, M.D., B.SC. Vict., HON. M.D. Leeds, M.R.C.P., formerly of Hull.

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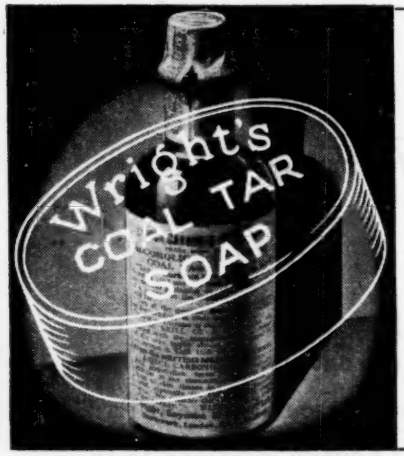

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This REGISTERED Hospital is situated at Monks Orchard in some 250 acres of park, pleasure and farm grounds. Application can be considered on behalf of patients of the educated classes in a presumably curable condition.

With a view to early treatment voluntary or uncertified patients are admitted.

Patients who can contribute 5 guineas weekly towards the cost of treatment and maintenance may be received as vacancies arise. The Committee will also consider applications for admission at lower rates and in certain cases will be prepared to admit patients free of charge.

The comfort of sensitive patients is greatly enhanced by the fact that the majority are given single bedrooms.

TREATMENT ON MODERN PRINCIPLES. Every facility for specialised investigation and treatment is provided in the Lord Wakefield of Hythe Science and Treatment Unit, including RADIOLOGICAL and DENTAL DEPARTMENTS, BIO-CHEMICAL, PATHOLOGICAL and PSYCHOLOGICAL LABORATORIES.

The Medical Staff have access to a panel of Consultants in cases which present unusual symptoms requiring specialised investigation and treatment.

Under the direction of qualified officers HELIO-THERAPY, HYDRO-THERAPY and ELECTRO-THERAPY are administered in the Physio-Therapy Department.

SPECIALISED TREATMENT of various forms is given to suitable cases.

OCCUPATIONAL THERAPY in the form of various Arts and Crafts is actively encouraged from the medical aspect and under the guidance of a competent instructress this department has proved most effective as a therapeutic factor in all stages of mental illness.

The promotion of physical fitness is a prominent item of treatment and this is enhanced by arrangements for patients to take part in Outdoor and Indoor Sports and Entertainments.

Application should be made to the Physician-Superintendent.

ST. ANDREW'S HOSPITAL

FOR NERVOUS AND MENTAL DISORDERS

NORTHAMPTON

PRESIDENT: THE MOST HON. THE MARQUESS OF EXETER, K.G., C.M.G., A.D.C.

MEDICAL SUPERINTENDENT: THOMAS TENNENT, M.D., F.R.C.P., D.P.H., D.P.M.

This Registered Hospital is situated in 130 acres of park and pleasure grounds. Voluntary patients, who are suffering from incipient mental disorders or who wish to prevent recurrent attacks of mental trouble; temporary patients, and certified patients of both sexes are received for treatment. Careful clinical, bio-chemical, bacteriological, and pathological examinations. Private rooms with special nurses, male or female, in the Hospital or in one of the numerous villas in the grounds of the various branches can be provided.

WANTAGE HOUSE

This is a Reception Hospital in detached grounds with a separate entrance, to which patients can be admitted. It is equipped with all the apparatus for the complete investigation and treatment of Mental and Nervous Disorders by the most modern methods; insulin treatment is available for suitable cases. It contains special departments for hydrotherapy by various methods, including Turkish and Russian baths, the prolonged immersion bath, Vichy Douche, Scotch Douche, Electrical baths, Plombières treatment, etc. There is an Operating Theatre, a Dental Surgery, an X-Ray Room, an Ultra-violet Apparatus, and a Department for Diathermy and High-frequency treatment. It also contains Laboratories for bio-chemical, bacteriological, and pathological research. Psychotherapeutic treatment is employed when indicated.

MOULTON PARK

Two miles from the Main Hospital there are several branch establishments and villas situated in a park and farm of 650 acres. Milk, meat, fruit, and vegetables are supplied to the Hospital from the farm, gardens, and orchards of Moulton Park. Occupational therapy is a feature of this branch, and patients are given every facility for occupying themselves in farming, gardening, and fruit growing.

BRYN-Y-NEUADD HALL

The seaside house of St. Andrew's Hospital is beautifully situated in a Park of 330 acres, at Llanfairfechan, amidst the finest scenery in North Wales. On the North-West side of the Estate a mile of sea coast forms the boundary. Patients may visit this branch for a short seaside change or for longer periods. The Hospital has its own private bathing house on the seashore. There is trout-fishing in the park.

At all the branches of the Hospital there are cricket grounds, football and hockey grounds, lawn tennis courts (grass and hard courts), croquet grounds, golf courses, and bowling greens. Ladies and gentlemen have their own gardens, and facilities are provided for handicrafts, such as carpentry, etc.

For terms and further particulars apply to the Medical Superintendent (TELEPHONE: No. 2356 and 2357 Northampton), who can be seen in London by appointment.

COURT HALL, KENTON, near EXETER

FOR THE TREATMENT OF EIGHT LADIES, VOLUNTARY, TEMPORARY AND CERTIFIED PATIENTS

CLIFFDEN, TEIGNMOUTH

FOR EARLY AND CONVALESCENT CASES Recreational Therapies are held daily by skilled Leaders

The house stands high with spacious balconies and extensive views of the South Devon Coast. Beautiful garden. Own Dairy in 25 acres Private road to beach

There is also a charming house, **EBWORTHY, MANATON, DARTMOOR**, situated in 20 acres, 1100 ft. up for bracing moorland air

Resident Physicians—BERTHA M. MULES, M.D., B.S. ANNE S. MULES, M.R.C.S., L.R.C.P. *Telephones*—STARCROSS 259 and TEIGNMOUTH 289

CAMBERWELL HOUSE, 33, Peckham Road, London, S.E.5

Telegrams: "PSYCHOLIA, LONDON" FOR THE TREATMENT OF MENTAL DISORDERS *Telephone:* RODNEY 4212 (2 lines)

Completely detached Villas for mild cases. Voluntary Patients received. Twenty acres of grounds; own garden produce. Hard and grass tennis courts, putting greens, Recreation Hall with Badminton Court, and all indoor amusements. Occupational therapy, Calisthenics, Actino-therapy, prolonged immersion baths, shock and also modified insulin treatment. Chapel.

Senior Physician, Dr. HUBERT JAMES NORMAN, assisted by a resident Medical Staff and visiting Consultants

An Illustrated Prospectus giving fees, which are strictly moderate, may be obtained upon application to the Secretary

The Convalescent Branch is HOVE VILLA, BRIGHTON and is 200 ft. above sea-level

MALLING PLACE, KENT

For LADIES and GENTLEMEN of Unsound Mind

Terms moderate. Apply to Resident Medical Superintendent. Telegrams: ADAM WEST MALLING. Telephone No. 2: MALLING.

FENSTANTON

at "FIVE DIAMONDS," Chalfont St. Giles, Bucks

A Private Home for the Care and Treatment of a limited number of LADIES with Mental and Nervous Disorders. Certified, Voluntary, and Temporary Patients received. Mansion with 12 acres of ground. (See *Medical Directory*, p. 2517.) Apply Resident Physician. Telephone: Little Chalfont 2046. Station: Chalfont and Latimer.

SPRINGFIELD HOUSE

'Phone: BEDFORD 3417. **Near BEDFORD**

For Mental Cases with or without Certificates.

Fees from Five Guineas per week (including Separate Bedrooms for all suitable cases without extra charge).

For forms of admission, &c., apply to the Resident Physician, CEDRIC W. BOWER.

INTERVIEWS IN LONDON BY APPOINTMENT.

NORTHUMBERLAND HOUSE

Green Lanes, Finsbury Park, N.4

A PRIVATE HOSPITAL for the treatment of mental and nervous illnesses. Conveniently situated and easy of access from all parts. Six acres of ground, facing Finsbury Park. Voluntary and Temporary Patients received without certification. E.C.T. Shock therapy, Psychotherapy, and other modern forms of treatment. Telephone: STAmford Hill 2688. Telegrams: "Subsidiary, London."

For furher particulars apply to the Medical Superintendent, ROBERT M. RIGGALL, Member British Psycho-Analytical Society.

VALE ROYAL ABBEY

The New Cheshire Home of MUNDESLEY SANATORIUM

This modernized mansion is situated in its own beautiful grounds in the heart of Cheshire. Terms from 6½ to 10½ guineas weekly. Tel.: Winsford 3336. Station: Hartford. Postal Address: Vale Royal Abbey, Hartford, Cheshire.

Medical and Surgical Staff:
S. VERE PEARSON, M.D. (Cantab.), M.R.C.P. (Lond.)
E. C. WYNNE-EDWARDS, M.B. (Cantab.), F.R.C.S. (Edin.)
GEORGE DAY, M.D. (Cantab.)

CHISWICK HOUSE,

PINNER, MIDDLESEX.

Telephone: PINNER 234.

A Private Hospital for the Treatment and Care of Mental and Nervous Illnesses in both Sexes.

A modern country house, 12 miles from Marble Arch, in attractive and secluded surroundings. Fees from 10 guineas per week inclusive. Cases under Certificate, Voluntary and Temporary Patients received for treatment.

DOUGLAS MACAULAY, M.D., D.P.M.

VALE OF CLWYD SANATORIUM

This Sanatorium is established for the treatment of Tuberculosis of the Lungs and the Pleural Cavities. It is situated in the midst of a large area of park-land at a height of 450 feet above sea-level. Average rainfall 29·57 per annum. Full day and night Nursing Staffs. X-ray plant. Every facility for Artificial Pneumothorax and for operations on the Chest. Electric Lighting. Central Heating.

For particulars apply to Medical Superintendent.

H. MORRISTON DAVIES, M.D., M.Ch. (Cantab.), F.R.C.S., Llanbedr Hall, Ruthin, N. Wales.

PECKHAM HOUSE, 112, Peckham Road, London, S.E.15

Telegrams: "Alleviated, London" **Telephone: Rodney 2641-2642**

A Private Mental Hospital, for Ladies and Gentlemen suffering from Nervous and Mental Illness, where the amenities of a comfortable home are combined with full investigation and every well-established modern treatment.

Terms from £4.4.0 weekly.

Illustrated Prospectus may be obtained from the Physician Superintendent.

THE COTSWOLD SANATORIUM

On the Cotswold Hills, seven miles from Cheltenham, Stroud and Gloucester. Fully equipped for the treatment of all forms of Tuberculosis.

Terms: 6 to 10 guineas per week, inclusive.

Full particulars from MEDICAL SUPERINTENDENT, COTSWOLD SANATORIUM, CRANHAM, GLOUCESTER.

Telephone: Witcombe 2181 Telegrams: "Hoffman, Birdlip"

CRICHTON ROYAL, DUMFRIES

FOR NERVOUS AND MENTAL DISORDERS

Cases of Alcoholism and Drug Addiction are admitted. Every facility for individual treatment on the most modern lines. Terms moderate.

Medical Certificates given anywhere in the British Isles are valid for admission of patients.

Physician Superintendent: P. K. MCCOWAN, J.P., M.D., F.R.C.P., D.P.M., Barrister-at-Law. Tel.: Dumfries 1119.

UNIVERSITY EXAMINATION POSTAL INSTITUTION

17, RED LION SQUARE, LONDON, W.C.1

Over 50 years' experience

POSTAL COACHING FOR ALL MEDICAL EXAMINATIONS

MEDICAL PROSPECTUS (24 pages)

sent gratis, along with List of Tutors, &c., on application to the Principal, 17, Red Lion Square, London, W.C.1. (Telephone: HOLborn 6318.)

NATIONAL HEART HOSPITAL, Westmoreland-street, W.1 and MAIDS MORETON, BUCKINGHAM.

POSTGRADUATE COURSE—21ST–26TH JANUARY, 1946.

Date	*Morning*	*Afternoon*
21st Jan. ..	10 A.M.: Rheumatic Heart Disease. Dr. T. F. Cotton. 11.15 A.M.: Heart Attacks. Dr. B. T. Parsons-Smith.	.. 2 P.M.: Vascular Diseases. Dr. Maurice Campbell. 3.15 P.M.: Treatment of Heart Diseases. Dr. William Evans.
22nd Jan. ..	10 A.M.: Out-patient Clinic. Dr. John Parkinson.	.. 2 P.M.: Out-patient Clinic. Dr. Evan Bedford.
23rd Jan. ..	10 A.M.: Out-patient Clinic. Dr. T. F. Cotton.	.. 2 P.M.: Radiological Demonstration. Dr. John Parkinson. 3.15 P.M.: Cardiac Arrhythmias. Dr. Maurice Campbell
24th Jan. ..	Ward rounds at the Hospital, Maids Moreton. Dr. B. T. Parsons-Smith.	
25th Jan. ..	10 A.M.: Angina Pectoris. Dr. B. T. Parsons-Smith. 11.15 A.M.: Hypertensive Heart Disease. Dr. D. Evan Bedford.	.. 2 P.M.: Cardiac Failure. Dr. T. F. Cotton. 3.15 P.M.: Congenital Heart Disease. Dr. John Parkinson.
26th Jan. ..	10 A.M.: Demonstration of Electrocardiograms. Dr. William Evans.	

The fee for the Course is £7 7s. It will be limited to 20 members. Tickets of admission can be obtained only from the Secretary at the Hospital. Early application is desirable.

NATIONAL HOSPITAL, Queen-square, London, W.C.1.

A Course of 11 CLINICAL DEMONSTRATIONS will be given on SATURDAYS at 10.30 A.M. from 19TH JANUARY to 30TH MARCH, 1946, inclusive.

These demonstrations are open at a charge of 1 guinea for the course to postgraduate students and ½ guinea to final-year students. Members of H.M. and Allied Forces are admitted free.

Applications for tickets should be made to—

J. PURDON MARTIN, Dean.

L.M.S.S.A.

FINAL EXAMINATION: SURGERY, 11th March, 8th April, 13th May, 1946. MEDICINE, PATHOLOGY, 18th March, 15th April, 20th May, 1946. MIDWIFERY, 19th March, 16th April, 21st May, 1946. MASTERY OF MIDWIFERY EXAMINATIONS, May and November.

For regulations apply REGISTRAR, Apothecaries' Hall, Black Friars-lane, London, E.C.4.

ROYAL COLLEGE OF PHYSICIANS.

SALTWELL RESEARCH FUND.

Applications are invited for a Saltwell Research Studentship value £650 a year. 2 such studentships are vacant, each for a period of 1 year, renewable up to a total period of 3 years. Under the terms of the Fund the students appointed must engage in whole-time research work dealing with cancer, rheumatism, malaria, or morbid conditions of the prostate gland. The research proposed may deal with clinical or epidemiological aspects of such diseases, as well as with those accessible to purely laboratory investigations.

Applications, accompanied by the names of 3 referees, should state details of the proposed work, including the name of the institution where it is to be done and of the research director or departmental head who has agreed to provide the facilities required for it. A grant for reasonable expenses may be paid to the institution concerned. Further details may be obtained from the Secretary of the Trustees, the Assistant Registrar Royal College of Physicians, Pall Mall East, London, S.W.1, by whom applications for a studentship must be received not later than 15th May, 1946.

LONDON SCHOOL OF HYGIENE AND TROPICAL MEDICINE.

(UNIVERSITY OF LONDON.)
Incorporating THE ROSS INSTITUTE.

SHORT POSTGRADUATE COURSE IN BACTERIOLOGY.

A short course of study in Bacteriology will be held from 29TH APRIL to 5TH JULY, 1946. The number of admissions will be strictly limited. The course will comprise the general principles of bacteriology and immunology, systematic bacteriology, technical methods, diseases of laboratory animals, and elementary statistics. It is designed for medical graduates who have had routine experience in a bacteriological laboratory during the war and who intend to take up public health bacteriology as a career.

Applications for admission should reach the Registrar, London School of Hygiene and Tropical Medicine, Keppel-street, London, W.C.1, by 31st March, 1946.

WEST LONDON HOSPITAL, Hammersmith, W.6. Applications are invited from registered medical practitioners, Male and Female, including R practitioners who now hold A posts, for the appointment of SENIOR CASUALTY OFFICER (B2), vacant 1st February, 1946. The appointment will be for a period of 6 months and may be terminated by 1 month's notice on either side. Salary according to experience but not less than £100 a year, with the usual residential emoluments.

Applications, with particulars of age, nationality, Medical School, qualifications with dates, experience, and accompanied by copies of 3 testimonials, should reach me not later than first post on Tuesday, 8th January, 1946.

H. A. MADGE, Secretary.

WEST LONDON HOSPITAL, Hammersmith, W.6. Applications are invited from registered medical practitioners, Male and Female, including practitioners within 3 months of qualification and liable under the National Service Acts, for the appointment of HOUSE SURGEON (A), vacant 1st February, 1946. The appointment will be for a period of 6 months and may be terminated by 1 month's notice on either side. Salary at the rate of £100 a year, with the usual residential emoluments.

Applications, with particulars of age, nationality, Medical School, qualifications with dates, experience, and accompanied by copies of 3 testimonials, should reach me not later than first post on Tuesday, 8th January, 1946.

H. A. MADGE, Secretary.

THE ROYAL NATIONAL THROAT, NOSE, AND EAR HOSPITAL, Gray's Inn-road, W.C.1, and Golden-square, W.1. There are vacancies for ASSISTANTS in the Out-patient Departments for attendance at the following times :—

Gray's Inn-road	*Golden-square*
Mondays, 2 P.M.	Mondays, 10 A.M. and 2 P.M.
Wednesdays, 2 P.M.	Wednesdays, 2 P.M.
Fridays, 2 P.M.	Thursdays, 2 P.M.
Saturdays, 10 A.M.	Saturdays, 10 A.M.

The appointments, which are honorary ones, afford a good opportunity of acquiring extended clinical knowledge of the specialty, as the work consists of assisting the Surgeons in seeing patients.

Applications (which may be for a period of 3, 6, or 12 months) should specify the Hospital and time at which regular attendance could be made, and should be sent to the undersigned immediately.

There are also vacancies for CLINICAL ASSISTANTS in conjunction with the Institute of Laryngology and Otology. Clinical Assistants are attached to 2 "firms" and receive systematic clinical instruction. Further particulars may be obtained from: JOHN H. YOUNG, Secretary-Superintendent.

MEMORIAL HOSPITAL, Shooters Hill, London, S.E.18. (General Hospital—137 Beds.) Applications are invited for the post of RESIDENT SURGICAL OFFICER (B1). Applicants should have held house appointments, and preference will be given to candidates holding diploma of F.R.C.S. Salary at the rate of £350 p.a., with full residential emoluments. Suitably qualified R practitioners holding B2 appointments, also those holding B1 and ineligible for H.M. Forces, may apply.

Applications to be sent as soon as possible to—

J. I. COXON INCE, House Governor.

ST. PETER'S HOSPITAL FOR STONE, Henrietta-street, Covent Garden, W.C.2. Applications are invited for the post of ASSISTANT SURGEON. Applicants must be registered medical practitioners and either Fellows of one of the Royal Colleges or Masters of Surgery of a university in the United Kingdom. Officers serving in the Forces are eligible and should one be elected he would not be required to take up his duties until his release.

Applications, with copies of 3 testimonials, should reach the Secretary before the end of March. In the case of serving officers, 3 references can be sent in lieu of testimonials.

ROYAL FREE HOSPITAL, Gray's Inn-road, London, W.C.1. Applications are invited from registered medical practitioners for the appointment of OBSTETRIC AND GYNÆCOLOGICAL REGISTRAR (B1) at Liverpool Road Annexe. Duties to commence forthwith for 1 year. Salary £350 p.a. Applicants must not be more than 10 years qualified. Suitably qualified R practitioners holding B2 appointments, also those holding B1 and ineligible for H.M. Forces, may apply.

Applications, stating age and accompanied by copies of 3 recent testimonials, should be sent on or before 8th January to—

RICHARD T. BARTLEY, Secretary.

THE HOSPITAL FOR SICK CHILDREN, Great Ormond-street, London, W.C.1. There will be a vacancy for a HOUSE SURGEON (B2) early in February, 1946. Salary £100 p.a., with full residential emoluments. The appointment is for 6 months. R practitioners now holding A posts, and practitioners of either sex ineligible for H.M. Forces, may apply.

Further particulars and form of application, which must be returned not later than the 23rd January, 1946, are obtainable from: H. F. RUTHERFORD, Secretary.

December, 1945.

QUEEN MARY'S HOSPITAL FOR THE EAST END, Stratford, London, E.15. The General Committee invite applications to fill the following appointments to the Honorary Medical Staff :—

OTO-RHINO-LARYNGOLOGIST.
ORTHOPÆDIC SURGEON.
OPHTHALMIC SURGEON.

Applications are invited from candidates at present serving in H.M. Forces. Candidates must be Fellows of the Royal College of Surgeons of England and be engaged solely in the practice of their specialty, or, should they be appointed, undertake to do so.

Applications must reach the undersigned not later than 11th May, 1946, together with 1 copy of 3 testimonials, if possible. Further particulars can be obtained on application.

M. J. HUNTLEY, House Governor and Secretary.

CHARING CROSS HOSPITAL. The Council invites applications for the post of ASSISTANT SURGEON to the Ear, Nose and Throat Department. Practitioners serving in H.M. Forces are invited to apply.

Candidates, who must be Fellows of the Royal College of Surgeons of England, should send in their applications, together with copies of 3 recent testimonials, not later than Tuesday, 23rd April, 1946, to: GEORGE J. JONES, Secretary, Charing Cross Hospital, Strand, London, W.C.2.

CHARING CROSS HOSPITAL. There are vacancies for 2 HONORARY ANÆSTHETISTS at the above Hospital. Applicants should have specialised in anæsthetics and should also have the D.A.

Applications, together with copies of 3 recent testimonials, should be sent not later than Tuesday, 30th April, 1946, to—

GEORGE J. JONES, Secretary.

Charing Cross Hospital, Strand, London, W.C.2.

THE LONDON CHEST HOSPITAL, Victoria Park, E.2. Applications are invited for the post of SENIOR ASSISTANT PATHOLOGIST (whole-time). Commencing salary £1000 p.a. Particulars as to duties may be obtained from the Secretary. Practitioners serving with H.M. Forces are eligible.

Applications, with copies of 3 testimonials, should be sent to the Secretary not later than 30th April, 1946. If these are not available the names of 3 persons in this country to whom reference may be made should be given.

THE NATIONAL HOSPITAL FOR NERVOUS DISEASES, Queen-square, London, W.C.1. The Board of Management invites applications for the post of PHYSICIAN IN PSYCHOLOGICAL MEDICINE. Candidates should be Members or Fellows of the Royal College of Physicians, London. The post will carry a salary of £750 p.a., and the Physician appointed will be expected to devote at least half his time to the service of the Hospital. He will be permitted to engage in private practice. The appointment will be for 5 years in the first instance.

Applications should reach the undersigned, from whom further details can be obtained, by 1st May, 1946.

H. EWART MITCHELL, Secretary.

THE NATIONAL HOSPITAL FOR NERVOUS DISEASES, Queen-square, London, W.C.1. Applications are invited from registered medical practitioners for the appointment of HOUSE SURGEON (B1). The appointment will be for a period of 6 months in the first instance. Salary is at the rate of £200 p.a., with full residential emoluments. Demobilised members of H.M. Forces are invited to apply, particularly those having experience as graded surgeons or experienced in neurosurgery. Suitably qualified R practitioners holding B2 appointments, also those holding B1 and ineligible for H.M. Forces, may apply.

Applications, with copies of testimonials, to be sent not later than 5th January, 1946, to: H. EWART MITCHELL, Secretary.

THE NATIONAL HOSPITAL FOR NERVOUS DISEASES, Queen-square, London, W.C.1. The Board of Management invites applications for the appointment of HONORARY SURGEON. Candidates should be Fellows of the Royal College of Surgeons of England. Doctors serving in H.M. Forces are invited to apply.

Applications should be forwarded not later than 30th April, 1946, to: H. EWART MITCHELL, Secretary.

THE PRINCE OF WALES'S GENERAL HOSPITAL, London, N.15. (238 Beds.) Applications are invited from registered medical practitioners, Male and Female, for the appointment of ORTHOPÆDIC HOUSE SURGEON (B1), to become vacant. Applicants should have held house appointments and had surgical experience. Preference will be given to candidates holding diploma of F.R.C.S. Salary at the rate of £350 p.a., with full residential emoluments. Suitably qualified R practitioners holding B2 posts, also those holding B1 and ineligible for H.M. Forces, may apply. J. C. BURDETT, Director and House Governor.

27th November, 1945.

THE PRINCE OF WALES'S GENERAL HOSPITAL, London, N.15. Applications are invited from suitably qualified registered medical practitioners, including those at present serving with H.M. Forces, for the appointment of HONORARY ASSISTANT GYNÆCOLOGIST. Candidates must be Fellows of one of the Royal Colleges of Surgeons, and engaged in the practice of obstetrics and gynæcology only.

Applications, with copies of 3 testimonials, should reach the undersigned on or before Tuesday, 7th May, 1946.

J. C. BURDETT, Director and House Governor.

18th December, 1945.

TILBURY HOSPITAL, Tilbury, Essex. Applications are invited from registered Male practitioners for the appointment of RESIDENT HOUSE SURGEON AND CASUALTY OFFICER (B1), vacant 1st February, 1946. Applicants should have held house appointments and had surgical experience. Salary is at the rate of £350 p.a., with full residential emoluments. Suitably qualified R practitioners who now hold B2 posts, also those now holding B1 and ineligible for H.M. Forces, may apply.

Applications should be sent to the Resident Secretary, Tilbury Hospital, Tilbury, Essex. F. A. LYON,

Seamen's Hospital Society. Administrator and Secretary.

ST. MARY'S HOSPITAL MEDICAL SCHOOL. Applications are invited, to be accompanied by copies of 2 testimonials, for the post of SENIOR TECHNICIAN (Grade B) to the Medical Unit. Applicants should be trained in chemistry, biochemistry, physiology, or pathology. Salary according to age and experience (Hospital Staff's Scheme).

Reply to Secretary not later than 28th January, 1946.

DREADNOUGHT SEAMEN'S HOSPITAL, Greenwich. The Committee of Management of the Seamen's Hospital Society invite applications for the post of HONORARY SURGEON from Fellows of the Royal College of Surgeons of England or Masters of Surgery of a university of the United Kingdom.

Applications, stating age and particulars of previous appointments, with names of not more than 3 referees, to be sent to the undersigned on or before 1st June, 1946. The vacancy has been notified to the Directors of Medical Services, H.M. Forces.

F. A. LYON, Administrator and Secretary.

Greenwich, January, 1946.

DREADNOUGHT SEAMEN'S HOSPITAL, Greenwich. The Committee of Management of the Seamen's Hospital Society invite applications for the post of HONORARY ASSISTANT SURGEON from Fellows of the Royal College of Surgeons of England or Masters of Surgery of a university of the United Kingdom.

Applications, stating age and particulars of previous appointments, with names of not more than 3 referees, to be sent to the undersigned on or before 1st June, 1946. The vacancy has been notified to the Directors of Medical Services, H.M. Forces.

F. A. LYON, Administrator and Secretary.

Greenwich, January, 1946.

DREADNOUGHT SEAMEN'S HOSPITAL, Greenwich. The Committee of Management of the Seamen's Hospital Society invite applications for the post of HONORARY ASSISTANT PHYSICIAN from Fellows or Members of the Royal College of Physicians of London.

Applications, stating age and particulars of previous appointments, with names of not more than 3 referees, to be sent to the undersigned on or before 1st June, 1946. The vacancy has been notified to the Directors of Medical Services, H.M. Forces.

F. A. LYON, Administrator and Secretary.

Greenwich, January, 1946.

HIS MAJESTY'S COLONIAL SERVICE

THE COLONIAL MEDICAL SERVICE

VACANCIES FOR MEDICAL OFFICERS

General recruitment for the Colonial Medical Service has been resumed. There has been little recruitment during the war and as a result vacancies have to be filled, both to replace normal wastage and to provide staff for expansion. The Secretary of State for the Colonies invites applications from doctors who are British subjects and possess a medical qualification registrable in the United Kingdom.

Medical Officers are appointed in the first instance for general service, but there are ample opportunities for work in special branches of medicine and surgery, in public health and in medical research.

The normal salary scale is from £600 to between £1000 and £1150. There are large numbers of super-scale posts to which promotion is made on merit and which carry higher salaries. The large majority of Colonial Governments have agreed to allow credit for war service in fixing the point at which selected candidates will enter the salary scale. The intention of this concession is to meet the cases of candidates who, by reason of war service, enter the Colonial Service at a later age than is normal.

All officers appointed to permanent posts in the Colonial Service between the outbreak of war and a post-war date to be fixed by the Secretary of State for the Colonies will be regarded as having entered the Service in a single group. Seniority as between themselves in an individual Colony will be reckoned by age.

Government quarters, in many cases free of rent, and first-class passages to and from the Colonies are provided, and an adequate pension scheme is in force.

Selected candidates are normally required to attend a course of instruction in Tropical Medicine and Hygiene, either before proceeding overseas or during their first leave period.

Further particulars, including the regulations governing admission to the Colonial Medical Service, may be obtained from the Director of Recruitment (Colonial Service), 15, Victoria-street, London, S.W.1.

THE LONDON COUNTY COUNCIL invites applications from registered medical practitioners for inclusion in a panel for filling vacancies for Temporary Part-time ASSISTANT MEDICAL OFFICERS for school medical inspections. The rate of pay is 30s. a session of 2½ hours, together with appropriate cost-of-living addition. Experience of medical examination of children is desirable. Employment will depend on the requirements of the work.

Application form (stamped addressed envelope necessary) from the Medical Officer of Health (S.D.5), The County Hall, Westminster Bridge, S.E.1, and returnable by 19th January, 1946. Canvassing disqualifies.

THE ROYAL CANCER HOSPITAL (FREE) (Incorporated under Royal Charter), Fulham-road, London, S.W.3. Applications are invited from duly qualified medical Men for the post of ASSISTANT DIRECTOR of the Radiotherapy Department. The appointment is a full-time one, and the commencing salary will be at the rate of £1000 p.a. The Assistant Director shall devote his whole time to the work of the department, but this shall not preclude him from accepting approved Examinerships and Lectureships. He shall be permitted private practice provided that this is conducted in the Hospital. He shall take part in the teaching of radiotherapy and radiography. He shall be granted facilities for research work and will be expected to do everything in his power to promote and advance the study of radiotherapy particularly in relation to cancer and allied diseases.

Applications, to be made on a form which will be supplied by the Secretary, together with copies of 3 recent testimonials, should be sent not later than the first post on Saturday, 4th May, 1946, to: VICTOR H. PINKHAM, Secretary.

THE ROYAL CANCER HOSPITAL (FREE) (Incorporated under Royal Charter), Fulham-road, London, S.W.3. Applications are invited from duly qualified medical Men for the pos t of DIRECTOR of the X-ray Diagnostic Department. The appointment is a part-time one and involves attendances on 5 half-day sessions a week. The salary will be at the rate of £750 p.a. The Director shall be entitled to receive fees for work carried out in connexion with private patients attending the Hospital under other members of the staff, but shall not be permitted to see private patients referred to him direct from outside sources. The teaching of X-ray diagnosis shall form an important part of his duties.

Applications, to be made on a form which will be supplied by the Secretary, together with copies of 3 recent testimonials, should be sent not later than the first post on Saturday, 4th May, 1946, to: VICTOR H. PINKHAM, Secretary.

THE ROYAL CANCER HOSPITAL (FREE) (Incorporated under Royal Charter), Fulham-road, London, S.W.3. Applications are invited from duly qualified medical Men for the post of DIRECTOR of the Pathology Department. Experience in clinical pathology essential. Salary £1250 p.a. The appointment is subject to rules, a copy of which can be obtained from the Secretary.

Applications, to be made on a form which will be supplied by the Secretary, together with copies of 3 recent testimonials, should be sent not later than the first post on Saturday, 4th May 1946, to: VICTOR H. PINKHAM, Secretary.

DREADNOUGHT SEAMEN'S HOSPITAL, Greenwich. Applications are invited for the part-time post of MEDICAL REGISTRAR for 5 half-day sessions weekly for the period of 6 months from 1st March, 1946. Salary at £350 p.a.

Applications from British Male practitioners, stating age, qualifications, and previous experience, with copies of not more than 3 recent testimonials, to be sent on or before 1st February next to: F. A. LYON, Administrator and Secretary.

ST. MARY'S HOSPITAL, W.2. Applications are invited for the post of MEDICAL SUPERINTENDENT (B1) from medical practitioners who have held the post of Resident Medical Officer at this or some other general hospital approved by the Board of Management. The appointment will be for a first period of 12 months. Salary £500 p.a., with board and residence provided. Suitably qualified R practitioners now holding B2 posts, also those holding B1 and ineligible for H.M. Forces, may apply.

Applications, stating nationality, permanent address, date of birth, qualifications with dates, and details of previous appointments held, together with copies of not more than 3 testimonials should reach the undersigned by Thursday, 10th January, 1946.

W. PARKES, House Governor.

THE ROYAL MASONIC HOSPITAL, Ravenscourt Park, London, W.6. Applications are invited from registered medical practitioners, Male, for the appointment of RESIDENT MEDICAL OFFICER (B1), vacant at the end of January. Applicants should have held house appointments and had medical experience. Preference would be given to a candidate holding diploma of M.R.C.P. The salary is at the rate of £300 p.a., together with full board and lodging and laundry, or would be at a higher rate if the candidate holds his M.R.C.P. diploma. Suitably qualified R practitioners now holding B2 appointments, also those holding B1 and ineligible for H.M. Forces, may apply.

Please apply in writing to the Joint Honorary Secretaries by giving the application to the Hospital by the first week in January so that selected candidates may be summoned for the committee meeting on 9th January, 1946.

THE HOSPITAL FOR DISEASES OF THE SKIN, 71, Blackfriars-road, London, S.E.1. Applications are invited for an ASSISTANT PHYSICIAN. Applicants should be M.R.C.S. Eng. or F.R.C.S. Eng., but these qualifications are not essential for candidates who have exceptional dermatological experience.

Applications must be received by 30th May, 1946, and addressed to: RALPH ALDER, Secretary.

ST. BARTHOLOMEW'S HOSPITAL. Notice is hereby given that a meeting of Election Committee will be held on Tuesday, 7th May, 1946, at 4 o'clock in the afternoon, to elect the undermentioned to the Staff of St. Bartholomew's Hospital, viz.:—

(*a*) 2 ASSISTANT PHYSICIANS, who must be Fellows or Members of the Royal College of Physicians of London. In making one of these appointments the Election Committee will give preference to an applicant possessing special knowledge of chest diseases.

(*b*) 1 THORACIC SURGEON, who must be a Fellow of the Royal College of Surgeons of England, and have a special knowledge and experience of thoracic surgery.

(*c*) 1 NEUROSURGEON, who must be a Fellow of the Royal College of Surgeons of England and possess special knowledge and experience of neurosurgery.

(*d*) 2 ASSISTANT SURGEONS, who must be Fellows of the Royal College of Surgeons of England.

(*e*) 1 ASSISTANT PHYSICIAN to the Department for Diseases of the Skin, who must be either a Fellow or Member of the Royal College of Physicians of London, or a Fellow of the Royal College of Surgeons of England.

(*f*) 1 ASSISTANT SURGEON for work in the Orthopædic Department, who must be a Fellow of the Royal College of Surgeons of England and have specialised in orthopædic work. He will be required to supervise fracture treatment at the Hospital and to assist in the Rehabilitation Department.

(*g*) 1 PLASTIC SURGEON, who must be a Fellow of the Royal College of Surgeons of England and have specialised in plastic surgery.

All the foregoing appointments are part-time and candidates applying therefor are required to lodge 50 copies of their applications and testimonials with the undersigned, on or before Saturday, 27th April, 1946.

C. C. CARUS-WILSON, Clerk to the Governors.

St. Bartholomew's Hospital, E.C.1.

CITY OF LONDON MENTAL HOSPITAL, near Dartford, Kent. Applications are invited from duly qualified medical practitioners for the established post of RESIDENT MEDICAL SUPERINTENDENT of the above Hospital. Commencing salary £1500 p.a., rising by annual increments of £50 to £1800 p.a. An unfurnished house will be provided, rent and tax free. There are no other emoluments. The appointment will be subject to the Asylums Officers' Superannuation Act, 1909. Candidates must hold the D.P.M. qualification, and preference will be given to a Member or Fellow of the Royal College of Physicians. He must not be over 45 on the 1st June, 1946, and he will be required to pass a medical examination. The successful candidate will be expected to commence his duties on the 1st July, 1946. Selected candidates will be interviewed about the end of May, 1946. Canvassing will be a disqualification.

Applications, accompanied by copies of 3 testimonials, should reach the undersigned not later than the 30th April, 1946. Candidates serving overseas may furnish names of 3 referees in lieu of forwarding copy testimonials.

L. T. FELDON, Clerk to the Visiting Committee.

City of London Mental Hospital, 5, Church-passage, Guildhall, London, E.C.2.

HAMPSTEAD GENERAL HOSPITAL, The Green, N.W.3. DEPARTMENT OF PHYSICAL MEDICINE AND REHABILITATION. Applications are invited from registered medical practitioners engaged solely in consulting practice for the post of HONORARY PHYSIOTHERAPIST to the above Department, the post at present being occupied on a temporary basis. Attendance is required twice a week and there are facilities for treating private patients. Members of H.M. Forces are eligible to apply.

Applications, preferably on the prescribed form with the names of 3 easily accessible referees, must reach the undersigned not later than 4th May, 1946, from whom details may be obtained. By Order of the Council of Management.

KENNETH A. F. MILES, House Governor.

ROYAL NORTHERN HOSPITAL, Holloway, N.7. Applications are invited from registered medical practitioners for the following appointments:—

(1) HOUSE PHYSICIAN (B2), vacant 1st March, 1946, for a period of 6 months. Salary and emoluments £120 p.a., with board, residence, and laundry. R practitioners who now hold A posts may apply.

(2) HOUSE SURGEON AND CASUALTY OFFICER (A), vacant 15th February, 1946, for a period of 6 months. Salary and emoluments approximately £120 p.a., with board, residence, and laundry. Practitioners within 3 months of qualification and liable under the National Service Acts may apply.

Applications, stating age, qualifications with dates, and nationality, accompanied by copies of 3 recent testimonials, should be sent not later than 18th January, 1946, to—

GILBERT G. PANTER, Secretary.

THE QUEEN ELIZABETH HOSPITAL FOR CHILDREN. (Incorporating THE QUEEN'S HOSPITAL FOR CHILDREN, Hackney-road, E.2, and THE PRINCESS ELIZABETH OF YORK HOSPITAL FOR CHILDREN, Shadwell, E.1.) Applications are invited from Men and Women, including those now serving in H.M. Forces, for the post of MEDICAL REGISTRAR, full-time and non-resident, at Hackney-road and Shadwell. Candidates must have had experience in pædiatrics and the M.R.C.P. will be an advantage. Salary £500 p.a. Appointment for 12 months, renewable for a second year.

Applications, with testimonials, should reach the undersigned not later than 31st January, 1946. CHARLES H. BESSELL, Hackney-road, E.2. General Secretary.

YORK CLINIC FOR PSYCHOLOGICAL MEDICINE, GUY'S HOSPITAL. Applications are invited for the position of HOUSE OFFICER in the York Clinic for Psychological Medicine in Guy's Hospital. If the post is filled by a B2 House Officer it will carry a salary at the rate of £200 p.a., with provision of board and lodging or an allowance at the rate of £100 p.a. in lieu. The post would normally be held for a period of 6 months. Special consideration will be given to Medical Officers leaving the Services and desirous of obtaining further experience in this branch of medicine, and who may or may not be in receipt of a Post Services Training Grant. R practitioners holding A posts may apply.

Applications in writing, with the names of 2 referees, should be submitted to the Secretary of the York Clinic, Counting House, Guy's Hospital, London, S.E.1. Applications should reach the Secretary not later than the 20th January, 1946.

MIDDLESEX COUNTY COUNCIL. Casualty Officer (B1, resident) required at Chase Farm Hospital, Enfield, Middlesex. Applications invited from registered medical practitioners who have held house appointments and had considerable all-round experience (including R and W practitioners holding B2 posts). R practitioners holding B1 posts ineligible unless rejected by R.A.M.C. Salary £350 p.a., plus cost-of-living bonus (now £60 p.a., proportion only paid in cash). Board, lodging, and laundry. Whole-time duties, under Medical Director, will include dealing with casualties and admissions to Hospital and such other duties as may be required. Appointment, subject to medical examination and 1 month's notice, is for 6 months, with possibility of extension to 12 months. Post vacant early February.

Applications, stating age, nationality, qualifications, and experience, enclosing copies of up to 3 recent testimonials, to Medical Director of Hospital. Closing date 12th January, 1946. Application forms not provided.

C. W. RADCLIFFE, Clerk of the County Council.
Middlesex Guildhall, Westminster, S.W.1.

MIDDLESEX COUNTY COUNCIL. Casualty Officer (B2 resident, Male) required at Hillingdon County Hospital, near Uxbridge, Middlesex. Applications invited from registered medical practitioners who have held house appointments and had good all-round experience (including R practitioners who now hold A posts). Salary £350 p.a., plus cost-of-living bonus (now £60 p.a., proportion only paid in cash). Board, lodging, and laundry. Whole-time duties, under Medical Director, will include dealing with casualties and admissions to Hospital and such other duties as may be required. Appointment is for 6 months, but may be extended for further 6 months (except R practitioners). Post vacant early February.

Applications, stating age, nationality, qualifications, and experience, enclosing copies of up to 3 recent testimonials, to Medical Director of Hospital. Closing date 12th January, 1946. Application forms not provided.

C. W. RADCLIFFE, Clerk of the County Council.
Middlesex Guildhall, Westminster, S.W.1.

THE SUTTON AND CHEAM GENERAL HOSPITAL, Sutton, SURREY. Applications are invited from registered medical practitioners, Male, including R practitioners who now hold A posts, for the appointment of CASUALTY OFFICER (B2), immediately vacant. The appointment is limited to 6 months, and the salary is at the rate of £200 p.a., with full residential emoluments.

Applications, stating age, qualifications with dates, nationality, and present post, and accompanied by copies of 3 recent testimonials, should be sent to the Secretary not later than 16th January, 1946.

ROYAL HAMPSHIRE COUNTY HOSPITAL, Winchester. (400 Beds.) Applications are invited for the following posts:—

2 HONORARY ASSISTANT SURGEONS.
1 HONORARY ORTHOPÆDIC AND TRAUMATIC SURGEON.
1 HONORARY PSYCHIATRIST.
1 HONORARY MEDICAL OFFICER in charge of X-ray Department.

The Orthopædic Surgeon and Assistant Surgeons are required to be Fellows of one of the Royal Colleges of Surgeons of Great Britain, or hold the degree of Master of Surgery of a university of the United Kingdom.

The Psychiatrist must be a registered medical practitioner and hold a Diploma in Psychological Medicine.

The Officer in charge of the X-ray Department must hold a registered medical degree of one of the colleges or universities of Great Britain or Ireland and a Diploma in Radiology.

Service candidates are invited to apply for these appointments, which will be made in May, 1946.

Applications, with copies of 3 testimonials, must be sent not later than the 27th April, 1946, to—

D. M. STANBURY, Acting Superintendent and Secretary.

THE UNIVERSITY OF LIVERPOOL. Applications are invited for the following 3 temporary posts in the Department of Obstetrics and Gynæcology:

(1) Whole-time TEMPORARY LECTURER AND ASSISTANT to the Professor. Salary £650–£800 p.a.
(2) Whole-time RESIDENT REGISTRAR-TUTOR in Obstetrics. Salary £400–£550 p.a., together with board-residence.
(3) Whole-time (Non-resident) REGISTRAR-TUTOR in Gynæcology. Salary £400–£550 p.a.

The salary for each post will be fixed according to qualifications and experience. The appointment to each post will be for a period of 6 months, after which time the post will be readvertised and the holders will be eligible to apply. Candidates in the Forces or engaged on National Service are invited to apply.

Applications, which should include particulars as to age, education, and experience, together with the names of 3 referees, should be received not later than Thursday, 31st January, 1946, by the undersigned, from whom further particulars may be obtained.

December, 1945. STANLEY DUMBELL, Registrar.

THE VICTORIA INFIRMARY OF GLASGOW. Full-time First ASSISTANT SURGEONS (non-resident). Salary £1000.

A Full-time FIRST ASSISTANT ORTHOPÆDIC SURGEON (non-resident). Salary £1000.

HONORARY VISITING FIRST ASSISTANT SURGEONS. Full-time members of staff, if eligible, are obliged to join the Infirmary's Superannuation scheme. Further information regarding these appointments may be had on application to the Medical Superintendent at the Infirmary, Langside, Glasgow.

Applications, together with copies of recent testimonials or names of referees, to be lodged with the undersigned not later than 30th April. JOHN W. ROBSON,
40, St. Vincent-place, Glasgow. Secretary and Treasurer.

COUNTY BOROUGH OF BLACKBURN. Public Assistance DEPARTMENT. Applications are invited from registered medical practitioners for the appointment of RESIDENT ASSISTANT MEDICAL OFFICER (B1) at Queen's Park Hospital and Institution, Blackburn. Salary £350 p.a. (plus a cost-of-living bonus), increasing by annual increments of £25 to £450, together with board, apartments, and attendance. Suitably qualified R practitioners holding B2 appointments, also those holding B1 and ineligible for H.M. Forces, may apply.

Further particulars may be obtained from the Public Assistance Officer, Cardwell-place, Blackburn, to whom applications, stating age, qualifications, and experience, accompanied by copies of 2 recent testimonials, must be sent.

CHAS. S. ROBINSON, Town Clerk.

KENT COUNTY COUNCIL. Public Health Department. County HOSPITAL, DARTFORD. Applications are invited for the appointment of DEPUTY MEDICAL SUPERINTENDENT (B1) of the above-named Hospital (446 Beds). The salary will be within the scale £600 a year, rising by increments of £50 to £750 a year, with full residential emoluments, plus war addition £29 19s. 8d. a year. Superannuation can be arranged and the successful candidate will be required to pass a medical examination. Candidates should have had previous administrative experience in a municipal hospital. Suitably qualified R practitioners holding B2 posts, also those holding B1 and ineligible for H.M. Forces, may apply.

No form of application will be issued, but further details can be obtained from the County Medical Officer, County Hall, Maidstone, to whom applications, stating age, qualifications, experience, and the names and addresses of 3 persons to whom reference may be made as to professional ability, should be sent so as to reach him by 16th January, 1946.

W. L. PLATTS, Clerk of the County Council.
County Hall, Maidstone.

THE ROYAL HOSPITAL, Wolverhampton. (Incorporated under Royal Charter.) (310 Beds.) Applications are invited from registered medical practitioners, Male, for the appointment of CASUALTY OFFICER (B2), vacant 11th February, 1946. Salary is at the rate of £150 p.a., with full residential emoluments. R practitioners who hold A posts may apply, when the appointment will be limited to 6 months.

1st January, 1946. W. COCKBURN, House Governor.

UNIVERSITY OF ABERDEEN. The University Court will shortly proceed to the appointment of a LECTURER IN BIOCHEMISTRY. Salary £800 to £1000—Federated Superannuation System for Universities. Persons desirous of being considered for the office are requested to lodge their names with the Secretary to the University on or before 30th April, 1946.

The conditions of appointment and form of application may be obtained from: H. J. BUTCHART, Secretary.
The University, Aberdeen.

NOTTINGHAM CITY HOSPITAL. Applications are invited from registered medical practitioners (Male or Female) for the post of JUNIOR HOUSE PHYSICIAN (A). Salary at the rate of £250 p.a., plus war bonus, with full residential emoluments. The appointment is not permanent but may, nevertheless, be determined by either party by 1 month's notice at any time. Practitioners within 3 months of qualification and liable under the National Service Acts may apply, when the appointment will be for a period of 6 months.

Applications, stating age, qualifications with dates, and nationality, should be accompanied by copies of 3 recent testimonials and sent to: J. E. RICHARDS, Town Clerk.

The Guildhall, Nottingham, December, 1945.

NOTTINGHAM CITY HOSPITAL. Applications are invited from registered medical practitioners (Male) for the appointment of RESIDENT JUNIOR HOUSE SURGEON (A). The appointment will be limited to 6 months. Salary at the rate of £250 p.a., with full residential emoluments, plus cost-of-living bonus. Practitioners within 3 months of qualification and liable under the National Service Acts may also apply.

Applications, stating age, qualifications with dates, and nationality, should be accompanied by copies of 3 testimonials and sent to: J. E. RICHARDS, Town Clerk.

Guildhall, Nottingham, December, 1945.

DORSET COUNTY HOSPITAL, Dorchester, Dorset. (Voluntary Hospital—100 Beds.) Applications are invited from registered medical practitioners, Male or Female, for the appointment of HOUSE SURGEON (A), vacant 26th February next. Salary is at the rate of £200 p.a., with full residential emoluments. Practitioners within 3 months of qualification and liable under the National Service Acts may apply, when the appointment will be for 6 months. C. H. SPENCE, Secretary.

RHONDDA URBAN DISTRICT COUNCIL. Applications are invited from registered medical practitioners of either sex for appointment as TEMPORARY ASSISTANT MEDICAL OFFICER, under the supervision of the Council's Medical Officer of Health and School Medical Officer, at a salary of £600, rising by annual increments of £25 to £700 p.a., plus the prevailing war bonus.

Forms of application and conditions of appointment may be obtained from the Medical Officer of Health, Tydfil House, Pentre, Rhondda, by whom completed applications must be received not later than Wednesday, the 16th January, 1946.

D. J. JONES, Clerk of the Council.

THE ROBERT JONES AND AGNES HUNT ORTHOPÆDIC HOSPITAL, OSWESTRY. (380 Beds, plus 160 E.M.S. Beds.) Applications are invited from registered medical practitioners, Male or Female, for the appointment of RESIDENT HOUSE SURGEON (B2), vacant 31st January, 1946. Salary £200 p.a., with full residential emoluments. R practitioners who now hold A posts may apply, when appointment will be limited to 6 months.

Applications, stating age, nationality, qualifications, &c., with copies of testimonials, to be forwarded at once to—

JOHN C. MENZIES, Secretary-Superintendent.

HULL ROYAL INFIRMARY. Applications are invited for the post of TEMPORARY HONORARY ASSISTANT OPHTHALMIC SURGEON from candidates holding the Diploma in Ophthalmic Medicine and Surgery.

Applications, with copies of testimonials, should be addressed to the Chairman of the Managing Committee.

R. J. CARLESS, House Governor.

INSTITUTE OF RESEARCH FOR PREVENTION OF DISEASE, Grove-street, LIVERPOOL, 7. Applications are invited for the post of HONORARY OPHTHALMOLOGIST to the above Institute.

Applications to Secretary by 4th May, 1946.

SALISBURY GENERAL INFIRMARY. (Voluntary Hospital—225 Beds.) Applications are invited from registered medical practitioners, including R practitioners who now hold A posts, for the appointment of RESIDENT HOUSE PHYSICIAN (B2), vacant 14th February, 1946. The appointment will be for 6 months. The salary is at the rate of £200 p.a., with full residential emoluments.

Applications, stating age, qualifications, and experience, accompanied by copies of 3 recent testimonials, should be sent to the Superintendent.

STOCKPORT INFIRMARY. (167 Beds.) Applications are invited from registered medical practitioners for the following appointments:—

(1) HOUSE SURGEON (A) (Aural, Eye, and Gynæcological), as from 20th January, 1946.
(2) HOUSE PHYSICIAN (A), as from 1st February, 1946.
(3) HOUSE SURGEON (A) (General and Orthopædic), as from 18th February, 1946.

Salary is at the rate of £150 p.a., with full residential emoluments. Practitioners within 3 months of qualification and liable under the National Service Acts may apply, when the appointments will be for a period of 6 months.

Applications, stating age, nationality, and qualifications' with copies of 2 testimonials, should reach the undersigned by 8th January, 1946. H. G. PRICE, Secretary-Superintendent.

ROYAL HOSPITAL, Richmond (Surrey). The Committee of Management invite applications for the post of HONORARY ORTHOPÆDIC SURGEON, who would also be in charge of all fractures, both in- and out-patients. Candidates must be Fellows of the Royal College of Surgeons and be in consultative practice.

Candidates desirous of applying should give details as to age, medical training, experience, and qualifications, together with copies of 3 testimonials, to be received not later than 1st May, 1946. The successful candidate will be required to take up the appointment as soon as possible after that date. Further particulars can be obtained from the House Governor, Lord AUCKLAND.

BIRMINGHAM ACCIDENT HOSPITAL AND REHABILITATION CENTRE. Applications are invited from registered medical practitioners, Male and Female, for the following appointment:—

HOUSE SURGEON (B2) for the Medical Research Council Burns Unit, vacant in mid-January. The salary is at the rate of £150 p.a., with full residential emoluments, for newly qualified practitioners, and at the rate of £200 p.a., with full residential emoluments, for practitioners who have already held hospital appointments.

R practitioners how now hold A posts may apply. The appointment will be for 6 months.

A. A. MACIVER, Secretary.

Bath-row, Birmingham, 15, 1st January, 1946.

BIRMINGHAM ACCIDENT HOSPITAL AND REHABILITATION CENTRE. Applications are invited from registered medical practitioners, Male and Female, including practitioners within 3 months of qualification and liable under the National Service Acts, for the appointments of 2 HOUSE SURGEONS (A), vacant in mid-January. Appointments will be for 6 months. Salary is at the rate of £150 p.a., with full residential emoluments.

A. A. MACIVER, Secretary.

Bath-row, Birmingham, 15, 1st January, 1946.

BIRMINGHAM ACCIDENT HOSPITAL AND REHABILITATION CENTRE, BIRMINGHAM, 15. Applications are invited from registered medical practitioners, Male and Female, including R practitioners who now hold A posts, for the appointments of 2 HOUSE SURGEONS (B2), vacant in mid-January. The appointments will be for 6 months. Salary is at the rate of £200 p.a., with full residential emoluments.

1st January, 1946. A. A. MACIVER, Secretary.

ROYAL WEST SUSSEX HOSPITAL, Chichester. (274 Beds, including 160 E.M.S.) Applications are invited from registered medical practitioners for the appointment of RESIDENT MEDICAL OFFICER (B2), vacant 29th January, 1946. The appointment is for 6 months. Salary £225 p.a., with full residential emoluments. R practitioners now holding A posts may apply.

Applications, accompanied by 3 testimonials, should be addressed to: K. H. WILLIAMS, House Governor and Secretary.

1st January, 1946.

SURREY COUNTY COUNCIL. Dorking County Hospital, Horsham-road, DORKING. (170 Beds.) Applications are invited for the permanent appointment of MEDICAL SUPERINTENDENT to the above Hospital. Candidates must have had experience in hospital administration and preference will be given to an obstetrician and gynæcologist or to a general physician. The commencing salary will be at a point on the grade £950–£50–£1150 p.a. inclusive, plus a house valued at £100 p.a. or cash in lieu. The appointment is subject to the provisions of the Local Government Superannuation Act, 1937.

Apply to the County Medical Officer, County Hall, Kingston-on-Thames, by the 4th May, 1946.

UNIVERSITY OF BRISTOL. Applications are invited for the SIDNEY ROBINSON FELLOWSHIP IN RHEUMATIC DISEASES tenable at the University of Bristol and the Royal National Hospital for Rheumatic Diseases, Bath. The Fellow will be required to devote the whole of his time to research work in rheumatic diseases at the Royal National Hospital for Rheumatic Diseases. The subject of the research will be approved by the University after consultation with the Empire Rheumatism Council. Salary £500 p.a. The appointment will be for 1 year but may be renewable for a further period.

Further particulars may be obtained from the undersigned, to whom application should be made on or before 28th February, 1946. WINIFRED SHAPLAND, Secretary and Registrar.

LANCASHIRE COUNTY COUNCIL. High Carley Sanatorium, near ULVERSTON. Applications invited for JUNIOR MEDICAL OFFICER (B2) at the High Carley Sanatorium, near Ulverston, containing 130 Beds for adult pulmonary patients and (at Oubas House) 21 Beds for pulmonary cases in children. The medical staff consists of Medical Superintendent, Deputy Medical Officer, visiting Consultant Chest Physician and Surgeon: major thoracic chest unit. Salary £300 p.a., plus bonus, together with board, single quarters, and laundry, valued at £146. R practitioners who now hold A posts may apply, when appointment will be limited to 6 months; otherwise 1 year.

Forms of application and conditions of appointment from Central Tuberculosis Officer, County Offices, Preston.

VICTORIA HOSPITAL, Accrington. Applications are invited from registered medical practitioners (Male or Female) for the post of HOUSE SURGEON (B2). Appointment will be for a period of 6 months. Salary at the rate of £200 p.a., with full residential emoluments. R practitioners who now hold A posts may apply.

Applications, with copies of recent testimonials, to be sent to: P. D. WADSWORTH, Honorary Secretary.

NORTHUMBERLAND COUNTY COUNCIL. Applications are invited for the post of TEMPORARY ASSISTANT COUNTY MEDICAL OFFICER at the scale salary of £500 p.a., rising by annual increments of £25 to £700 p.a. Previous experience will be taken into consideration in determining the commencing salary. Persons already in whole-time public health employment by local authorities will not be eligible. Travelling and subsistence allowances will be paid in accordance with the Council's scale. The appointment will be subject to the provisions of the Local Government Superannuation Act, 1937, and the successful candidate will be required to pass a medical examination. The officer appointed must devote the whole of his time to his duties and may be required to undertake any duties in the Health Department.

Forms of application may be obtained from the undersigned, and applications should be received not later than 14th January, 1946. JOHN B. TILLEY, County Medical Officer.

County Hall, Newcastle upon Tyne, 1.

THE UNIVERSITY OF SHEFFIELD. Applications are invited for the newly established Full-time CHAIR OF CHILD HEALTH in the University. The Professor will work in close coöperation with the Professors of Medicine, Surgery, and Midwifery in organising the teaching in his Department and will be expected to prosecute and foster research in the problems of Child Health. He will arrange all lectures, classes, and demonstrations for undergraduate and postgraduate students in the Department of Child Health. During his tenure of the Chair, the Professor will be given the status of Honorary Physician to the Children's Hospital and will be provided with in-patient, out-patient, and laboratory facilities. He will also have access to the children's wards of the City General (Municipal) Hospital. Salary £2000 a year, with superannuation provision under the Federated Superannuation Scheme for Universities. Under this scheme the Professor will contribute 5% of his salary and a further 10% of the salary will be *added* by the University, the whole 15% being applied in accordance with the terms of the scheme. The Professor shall not undertake private practice or consulting work except in cases referred to him by members of the honorary staff of the teaching hospitals. Such fees as he may accept in these cases shall be paid over by him to the University. A candidate must be a graduate in medicine and either a Fellow or a Member of the Royal College of Physicians of London. He must have held a responsible clinical appointment in a teaching hospital and must produce evidence of his capacity to carry out and to direct clinical research. It is desired that the successful candidate begin his duties on 1st October, 1946, or as soon as possible thereafter.

Applications (6 copies), with testimonials and the names of referees, should be sent to the undersigned, from whom further particulars may be obtained. In order to allow time for candidates now abroad or in H.M. Forces to apply, the last date for receipt of applications has been fixed at 13th May, 1946. A referee who is abroad may send a confidential report direct to the Registrar without waiting for an inquiry from the University. A. W. CHAPMAN, Registrar.

THE UNIVERSITY OF MANCHESTER. The University proposes to proceed to the appointment of a Whole-time PROFESSOR OF SURGERY. Stipend not exceeding £2500 p.a. Duties to commence on 29th September, 1946. The University will however consider entry upon the tenure of the Chair at a later date in the case of a person who is at present serving in the Forces.

Any person who desires his name to be considered should communicate as early as possible and in any case before 20th April, 1946, with the Registrar, The University, Manchester, 13, and give a brief statement of his qualifications.

CITY OF BIRMINGHAM PUBLIC HEALTH DEPARTMENT. Applications are invited from qualified medical Women to act as TEMPORARY ASSISTANT MEDICAL OFFICER at one of the City Maternity Homes and to attend antenatal and children's clinics. The post is non-resident and the salary will be within the range of £525 to £775, plus cost-of-living bonus, with placing according to experience. The consent of the Ministry of Health has been given to this appointment but persons already in whole-time public health employment by local authorities will not be eligible to make application. Appointment will be subject to satisfactory medical examination. 1 month's notice will be required on either side to terminate the appointment.

Forms of application are obtainable from the Medical Officer of Health, Council House, Birmingham, 3, and should be returned, with copies of 3 testimonials, to that address not later than 19th January, 1946.

STAMFORD, RUTLAND AND GENERAL INFIRMARY. Applications are invited from registered medical practitioners, Male and Female, for the appointment of HOUSE SURGEON (A), now vacant. Salary is at the rate of £200 p.a., with full residential emoluments. Practitioners within 3 months of qualification and liable under the National Service Acts may apply, when appointment will be for a period of 6 months.

Applications, stating age, qualifications with dates, nationality, and accompanied by copies of 3 recent testimonials, should be sent immediately to the Secretary, H. F. DONALD, The Infirmary, Stamford.

ROYAL DEVON AND EXETER HOSPITAL, Exeter. Applications, including those from practitioners now serving in H.M. Forces, are invited for the post of HONORARY SURGEON in charge of the Obstetric and Gynæcological Department. Every candidate must be a Fellow or Member of the Royal College of Obstetricians and Gynæcologists, and special consideration will be given to candidates who are also Fellows of one of the Royal Colleges of Surgeons or Masters of Surgery of one of the universities of Oxford, Cambridge, or London.

Applications, with certificates of birth and registration and not less than 3 original testimonials, should be delivered to the undersigned on or before 10th May, 1946. Candidates on service abroad can send names of 3 or more persons to whom application may be made for testimonials. The selected candidate will be expected to take up the duties by the 1st July, 1946.

By order of the Committee,
L. PARKHOUSE, Secretary and Manager.

LINCOLN COUNTY HOSPITAL. (Voluntary Hospital—200 Beds.) Applications are invited from registered practitioners for the appointment of SENIOR HOUSE SURGEON (B1), vacant 7th February, 1946. Applicants should have held house appointments and had surgical experience. Salary is at the rate of £325 p.a. Suitably qualified R practitioners holding B2 appointments, also those holding B1 and ineligible for H.M. Forces, may apply.

Applications, stating age, nationality, qualifications with dates, experience and details of previous appointments, and accompanied by copies of 3 recent testimonials, should be sent to: ARTHUR MOORE, Secretary-Superintendent.

Lincoln, 29th December, 1945.

CITY OF LEEDS. Public Health Department. Seacroft Emergency HOSPITAL. Applications are invited from registered medical practitioners for the post of RESIDENT MEDICAL OFFICER (B1) at the above Hospital. The duties will include the treatment of tuberculosis, and previous experience in this work is desirable. The candidate will also be expected to undertake such other general medical duties as may be assigned to him by the Medical Superintendent. The salary will be at the rate of £350 p.a., plus a cost-of-living bonus, together with board, residence, and laundry, these emoluments being valued for superannuation purposes as £120 p.a. There is no accommodation for married men. Suitably qualified R practitioners holding B2 appointments, also those holding B1 and rejected by the R.A.M.C., may apply.

Applications, stating age, qualifications, and experience, together with copies of 3 recent testimonials, and endorsed "R.M.O.," to be forwarded not later than 12 NOON on Saturday, 19th January, 1946, to—

J. JOHNSTONE JERVIS, Medical Officer of Health,
Public Health Department (Hospitals Administration Section), 12, Market Buildings, Vicar-lane, Leeds, 1.

ADDENBROOKE'S HOSPITAL, Cambridge. The General Committee are proceeding to make the following appointments to the Honorary Staff of the Hospital:—

(1) HONORARY PHYSICIAN.
(2) HONORARY SURGEON.
(3) HONORARY SURGEON to the Gynæcological and Obstetrical Department (additional).

Applications for these appointments, supported by copies of testimonials, should be submitted to the undersigned by the 30th June, 1946. 20 copies of the application and testimonials should be sent for the use of the Selection Committee. Personal canvass of the Committee is expressly forbidden. It is hoped that applicants will be available to take over the post on the 1st October, 1946, but candidates now serving with H.M. Forces and unable to take up appointment by that date are eligible to apply. J. A. BEARDSALL, Secretary-Superintendent.

1st January, 1946.

OXFORD EYE HOSPITAL. Applications are invited for the post of SENIOR SURGEON. Candidates should be Fellows of the Royal College of Surgeons (England). They must have been engaged in consulting practice and be members of a recognised teaching school. Members serving overseas may apply by cablegram. Should the successful candidate be serving in His Majesty's Forces, arrangements will be made for him to take up the post on his release.

Applications should be sent to the Secretary, Oxford Eye Hospital, by the 1st May, 1946.

CROYDON GENERAL HOSPITAL. (200 Beds, including 23 Private, 17 Out-patient Clinics, and large Casualty Department.) JOINT HONORARY ORTHOPÆDIC SURGEON (temporary appointment) required immediately. This appointment is due to the retirement of Mr. Alan Todd, M.S., F.R.C.S., who has served the Hospital as Orthopædic Surgeon faithfully and well for 20 years. The permanent appointment of the Honorary Orthopædic Surgeon will be considered by the Medical Committee in September, 1946, and the applicant appointed as a result of this advertisement will be eligible for consideration. The day and time of the Orthopædic Out-patient Clinic is: Thursdays at 9.30 A.M. In-patient work as arranged.

Applications, with 2 recent testimonials, together with full particulars of past and present appointments, to be sent not later than 31st January, 1946, to—

GEORGE A. PAINES, House Governor.

ROYAL DEVON AND EXETER HOSPITAL, Exeter. Applications, including those from practitioners now serving in H.M. Forces, are invited for the post of HONORARY ASSISTANT ANÆSTHETIST.

Applications, with certificates of birth and registration and 3 original testimonials, should be delivered to the undersigned on or before 10th May, 1946. Candidates on service abroad can send names of 3 persons to whom application may be made for testimonials. By order of the Committee,

L. PARKHOUSE, Secretary and Manager.

ST. BARTHOLOMEW'S HOSPITAL, Rochester. (201 Beds.) Applications are invited for the vacancy for a THIRD HONORARY ASSISTANT SURGEON deferred during the war. Candidates must be Fellows of the Royal College of Surgeons of England, Scotland, or Ireland. The present Surgical Registrar will be an applicant for the post.

Applications, with copies of 3 testimonials, must reach the undersigned, from whom any further particulars can be obtained, not later than the 6th April, 1946.

T. RHODES, Superintendent-Secretary.

SUNDERLAND ROYAL INFIRMARY AND CHILDREN'S HOSPITAL. Applications are invited for the post of RADIOLOGICAL REGISTRAR, non-resident. Candidates should have had experience in X-ray diagnosis and should hold or be studying for a D.M.R.E. The Department is modern, busy, well equipped, and possesses a Deep Therapy Plant. The appointment is for a first period of 12 months at a minimum salary of £650 p.a. In accordance with the B.M.A. regulations, applications should be submitted within 4 months of the date of this advertisement.

Applications, stating nationality, permanent address, age, qualifications, and details of previous appointments, together with copies of not more than 3 testimonials, should be sent to—

T. F. W. MACKEOWN, House Governor and Secretary.

SOUTHEND GENERAL HOSPITAL. The Board of Management invite applications from suitably qualified practitioners for the appointment of TEMPORARY ASSISTANT PHYSICIAN to the Dermatological Department of this Hospital.

Applicants, who should be of consultant status, should forward their applications with full details of qualifications and experience, together with copies of 3 recent testimonials, to reach the undersigned not later than 31st January, 1946.

JOHN WILLIAMS, House Governor and Secretary.

TORBAY HOSPITAL, Torquay. In accordance with Rule 8, notice is hereby given that the Court of Governors will meet on or about 24th May, 1946, to elect 2 HONORARY ANÆSTHETISTS. Applications are invited from registered medical practitioners, including practitioners serving in H.M. Forces.

Applications (3 copies), accompanied by 3 copies of not more than 3 testimonials, should be received by the undersigned on or before Saturday, 18th May, 1946.

28th December, 1945. E. L. GRIST, Secretary.

COVENTRY AND WARWICKSHIRE HOSPITAL. Applications are invited from registered medical practitioners, Male and Female, including R practitioners who now hold A posts, for the appointment of HOUSE SURGEON (B2) to the Gynæcological and Obstetric Department. The appointment, which is for 6 months, is vacant on 15th February, 1946. Salary at the rate of £170 p.a., together with full residential emoluments.

Applications, stating age, qualifications with dates, and nationality, and accompanied by copies of 3 recent testimonials, should be addressed immediately to—

S. CECIL HILL, House Governor and Secretary.

COVENTRY AND WARWICKSHIRE HOSPITAL. Applications are invited from registered medical practitioners, Male and Female, including practitioners within 3 months of qualification and liable under the National Service Acts, for the appointment of HOUSE SURGEON (A) for General Surgical duties. The appointment, which is for 6 months, is vacant on 27th February, 1946. Salary at the rate of £170 p.a., with full residential emoluments.

Applications, stating age, qualifications with dates, and nationality, and accompanied by copies of 3 recent testimonials, should be addressed immediately to—

S. CECIL HILL, House Governor and Secretary.

COVENTRY AND WARWICKSHIRE HOSPITAL. Applications are invited from registered medical practitioners, Male and Female, including R practitioners who now hold A posts, for the appointment of HOUSE SURGEON (B2) to the Fracture and Orthopædic Department. The appointment, which is for 6 months, is vacant from December. Salary at the rate of £170 p.a., together with full residential emoluments.

Applications, stating age, qualifications with dates, and nationality, and accompanied by copies of 3 recent testimonials, should be sent to: S. CECIL HILL, House Governor and Secretary.

COVENTRY AND WARWICKSHIRE HOSPITAL. Applications are invited from registered medical practitioners, Male or Female, including R practitioners who now hold A posts, for the appointment of HOUSE SURGEON (B2) for general surgical duties. The appointment, vacant 1st January, 1946, is for 6 months. Salary at the rate of £170 p.a., together with full residential emoluments.

Applications, stating age, qualifications with dates, nationality, and accompanied by copies of 3 recent testimonials, should be sent immediately to—

S. CECIL HILL, House Governor and Secretary.

COVENTRY AND WARWICKSHIRE HOSPITAL. Applications are invited for the post of REGISTRAR (non-resident), full-time, to the Skin Department; and including some attendance at medical Out-patient Clinics. Candidates must have had previous experience in dermatology. Salary at the rate of £650 p.a.

Applications, with full details as to medical training, experience, and qualifications, and accompanied by copies of testimonials, should be addressed to—

S. CECIL HILL, House Governor and Secretary.

COVENTRY AND WARWICKSHIRE HOSPITAL. Applications are invited from registered medical practitioners of British nationality for the appointment of RESIDENT SURGICAL OFFICER (B1), vacant 1st March, 1946. Applicants should have held house appointments and had surgical experience. Preference will be given to candidates holding diploma of F.R.C.S. Salary is at the rate of £500 p.a. Suitably qualified R practitioners now holding B2 appointments, also those holding B1 and ineligible for H.M. Forces, may apply.

Applications, stating age, qualifications with dates, and accompanied by copies of 3 recent testimonials, should be addressed to—

S. CECIL HILL, House Governor and Secretary.

STATE MENTAL INSTITUTION, Rampton, near Retford, Notts. TEMPORARY ASSISTANT MEDICAL OFFICER required. Commencing salary £525 p.a., plus bonus of £60, with additional £50 for D.P.M., but experience in mental work not essential. Every opportunity for studying conduct disorders associated with mental disorders and defect. Pleasant quarters available.

Applications to Medical Superintendent, from whom further particulars may be obtained.

HOLLOWAY SANATORIUM (Registered Hospital for Mental PATIENTS), VIRGINIA WATER, SURREY. MEDICAL SUPERINTENDENT (Male) required, not over 46 years of age. Applicants must be duly registered medical practitioners, who must hold the Diploma in Psychological Medicine. Salary £1500 p.a. with house, &c. (value of emoluments £300 p.a.). The appointment will be subject to the provisions of the Hospital Pension Scheme, and to 3 months' notice on either side.

Applications, accompanied by 3 testimonials, to be sent to the Chairman of the Board of Governors not later than the 28th April, 1946. The candidate must be prepared to commence duty on the 1st June, 1946, or as soon as possible.

ROYAL BERKSHIRE HOSPITAL, Reading. Applications are invited immediately for the post of ASSISTANT PATHOLOGIST. Previous experience of laboratory work desirable but not essential. The appointment is suitable for practitioners intending to adopt clinical pathology as a career, and wishing to take the Diploma in Clinical Pathology of London University. Salary according to experience, but not less than £500 p.a.

Applications, stating age, experience, and accompanied by 3 recent testimonials, to be sent as soon as possible to—

H. E. RYAN, House Governor.

UNIVERSITY OF BIRMINGHAM. Faculty of Medicine. Department of Pharmacology. Applications are invited for the following appointments:—

(1) LECTURESHIP, Grade I (£800) or Grade II (£550–£800), IN EXPERIMENTAL PHARMACOLOGY. Preference will be given to candidates experienced in methods of bio-assay or work relating chemical structure to pharmacological action.

(2) LECTURESHIP IN PHARMACOLOGY at a salary of £500–£700, according to experience, preference to be given to candidates with experience in laboratory studies of chemotherapeutic agents. Duties to commence in October, 1946, in both cases. Practitioners serving in H.M. Forces are invited to apply.

Applications, with the names of 3 referees, should reach the undersigned, from whom further particulars may be obtained, not later than 30th April, 1946.

C. G. BURTON, Secretary.

The University, Edmund-street, Birmingham, 3,
December, 1945.

MANCHESTER ROYAL INFIRMARY. The Board of Management invite applications from registered medical practitioners, Male and Female, for the appointment of CHIEF ASSISTANT (B1) to a General Surgical Unit, vacant 4th February, 1946. Applicants must have held house appointments and had surgical experience. Preference will be given to candidates holding higher qualifications. Salary £400 p.a., non-resident; or £300 p.a., with residence. Suitably qualified R practitioners holding B2 posts, also those holding B1 and ineligible for H.M. Forces, may apply.

Applications, stating age, nationality, qualifications with dates, details of experience, with copies of 3 recent testimonials, should be sent to the undersigned not later than 12th January, 1946. By Order,

F. J. CABLE, General Superintendent and Secretary.

18th December, 1945.

CHELMSFORD AND ESSEX HOSPITAL. The General Committee of Management invite applications for the posts of 2 HONORARY PHYSICIANS and an HONORARY PÆDIATRIC PHYSICIAN. To enable those serving with H.M. Forces to apply for these posts, the appointments will not be made until 30th April, 1946.

Further particulars regarding these posts can be obtained from: R. G. MORRISH, House Governor and Secretary.

LANCASHIRE COUNTY COUNCIL. Wrightington Hospital, near WIGAN. Applications invited for JUNIOR MEDICAL OFFICER (B2) at the Wrightington Hospital, containing 370 Beds (260 Beds for non-pulmonary tuberculosis (adults and children), 20 Beds for "combined" pulmonary and non-pulmonary cases, and 70 Beds for pulmonary cases). The medical staff consists of Medical Superintendent, 3 assistants, 2 Consultant Orthopædic Surgeons, other visiting surgeons and visiting physician. Unit for major thoracic surgery. Good facilities for reading for M.D. Salary £300 p.a., plus bonus, together with board, single quarters, and laundry valued at £146. R practitioners who now hold A posts may apply, when appointment will be limited to 6 months; otherwise 1 year.

Forms of application and conditions of appointment from Central Tuberculosis Officer, County Offices, Preston. Mark letters "Wrightington M.O."

ROYAL HAMPSHIRE COUNTY HOSPITAL, Winchester. (400 Beds.) Applications are invited from registered medical practitioners, Men or Women, for the appointments of 1 HOUSE SURGEON (A) and 1 HOUSE PHYSICIAN (A), vacant 14th January, 1946. Salary is at the rate of £175 p.a., with full residential emoluments. Practitioners within 3 months of qualification and liable under the National Service Acts may also apply, when appointments will be for a period of 6 months.

Applications should be sent to—

D. M. STANBURY, Acting Superintendent and Secretary.

14th December, 1945.

ROYAL SALOP INFIRMARY, Shrewsbury. (203 Beds.) The Board of Management invite applications from registered medical practitioners for the following posts:—

2 HONORARY SURGEONS, 1 HONORARY GYNÆCOLOGIST, and 1 HONORARY PHYSICIAN.

Applicants are expected to have a higher qualification. Practitioners serving in H.M. Forces are invited to apply.

Applications should be forwarded not later than 22nd April, 1946, to: J. P. MALLETT, Secretary-Superintendent.

Board Room, 12th December, 1945.

CHORLEY AND DISTRICT HOSPITAL, Lancs. (100 Beds.) Applications are invited from registered medical practitioners (Male or Female) for the post of HOUSE SURGEON (B2). Appointment will be for a period of 6 months. Salary at the rate of £250 p.a., with full residential emoluments. R practitioners holding A posts may apply.

Applications, with copies of recent testimonials, to be sent to the Secretary-Superintendent.

THE BOLTON ROYAL INFIRMARY. (270 Beds—Resident Medical Staff—6.) Applications are invited from registered medical practitioners, Male and Female, for the appointment of HOUSE SURGEON (A), vacant mid-January, 1946. Salary £175 p.a., with full residential emoluments. Practitioners within 3 months of qualification and liable under the National Service Acts may apply, when the appointment will be for a period of 6 months.

Applications, stating age, nationality, and experience, together with copies of testimonials, to be forwarded to—

JOSEPH GRIFFITH, Superintendent-Secretary.

BRISTOL MENTAL HOSPITAL. Clinical Assistant (B2) (Male), required to commence duty early in the New Year. Salary £400 p.a., with full residential emoluments. R practitioners holding A posts may apply, when appointment will be limited to 6 months.

Applications, giving full details, to the Medical Superintendent, Mental Hospital, Fishponds, Bristol.

BIRMINGHAM UNITED HOSPITAL. The General Hospital. THE QUEEN ELIZABETH HOSPITAL. (Also incorporating the QUEEN'S HOSPITAL 1840–1941.) Applications are invited for the following posts:—

For duty mainly at The Queen Elizabeth Hospital.

2 Whole-time MEDICAL REGISTRARS (B1) (non-resident). Candidates must be Members of the Royal College of Physicians and have held a resident appointment in a teaching hospital. Salary £350 p.a.

1 RESIDENT SURGICAL OFFICER (B1). Candidates must be Fellows of the Royal College of Surgeons of England, Edinburgh, or Ireland, and have held a resident appointment in a teaching hospital. Salary £175 p.a., with full residential emoluments.

For duty mainly at The General Hospital.

1 RESIDENT MEDICAL OFFICER (B1). Candidates must be registered medical practitioners and have held a resident appointment in a teaching hospital. Salary £175 p.a., with full residential emoluments.

1 SURGICAL AND RADIOTHERAPEUTIC REGISTRAR (B1) (resident). Candidates must be registered medical practitioners and have held a resident appointment in an approved hospital. Salary £100 p.a., with full residential emoluments.

For duty at both above Units.

1 Whole-time REGISTRAR (B1) to the Ear, Nose, and Throat Departments (non-resident). Candidates must be registered medical practitioners, and preference will be given to those possessing the qualification of F.R.C.S. Eng. or Edin., and with ear, nose, and throat experience. Salary £350 p.a.

Suitably qualified R practitioners holding B2 appointments, also those holding B1 and ineligible for H.M. Forces, may apply.

Applications, stating age, qualifications, experience, nationality, and present post, together with copies of 3 recent testimonials, should be sent to the undersigned at once, from whom all further information can be obtained.

G. HURFORD, Secretary, Birmingham United Hospital,
The Queen Elizabeth Hospital, Birmingham, 15.
18th December, 1945.

BIRMINGHAM MATERNITY HOSPITAL. (Associated with UNIVERSITY OF BIRMINGHAM.) Applications are invited from registered medical practitioners for the appointment of RESIDENT SURGICAL OFFICER (B1), vacant 1st March, 1946. The appointment is for 12 months and the holder will be eligible for reappointment. The post is recognised for the examinations of the Royal College of Obstetricians and Gynæcologists. Applicants should have held house appointments and at least one previous obstetrical post. Preference will be given to candidates holding the M.R.C.O.G., or reading for this examination. Salary at the rate of £200 p.a., with full residential emoluments. Suitably qualified R practitioners holding B2 posts, also those holding B1 and ineligible for H.M. Forces, may apply.

Applications should be sent as soon as possible to—

BERNARD SYLVESTER, House Governor.
Loveday-street, Birmingham, 4, 18th December, 1945.

COUNTY OF BERKS. The Berkshire County Council invite applications from registered medical practitioners, including those now serving in His Majesty's Forces, for the permanent appointment of COUNTY MEDICAL OFFICER OF HEALTH AND SCHOOL MEDICAL OFFICER at a salary of £1200 p.a., rising by annual increments of £50 to £1500, plus cost-of-living bonus and a travelling allowance according to the Council's scale. Candidates must not only be qualified as prescribed by the Local Government Act, 1933, but must possess administrative ability and a wide knowledge and experience of the organisation of public health services. The appointment will be subject to the provisions of the Local Government Superannuation Act, 1937.

Conditions of appointment and form of application can be obtained on receipt of a stamped and addressed envelope from the undersigned, to whom all applications must be delivered not later than 30th April, 1946. Canvassing, directly or indirectly, will be a disqualification. The consent of the Minister of Health has been obtained to the making of the appointment.

H. J. C. NEOBARD, Clerk of the Council.
Shire Hall, Reading, December, 1945.

DERBYSHIRE COUNTY COUNCIL. Applications are invited from registered medical practitioners, Male or Female, for the appointment of TEMPORARY JUNIOR RESIDENT ASSISTANT MEDICAL OFFICER (B1) at the Bretby Hall Orthopædic Hospital. Applicants should have held house appointments, and preference will be given to candidates who have had orthopædic experience. Salary at the rate of £350 p.a., rising by annual increments of £25 to £450 p.a., plus a war bonus, together with board, lodging, &c. The successful candidate will devote the whole of his (or her) time to the duties of the office. The appointment will be subject to the provisions of the Local Government Superannuation Act, 1937, and the person appointed will be required to pass a medical examination. Suitably qualified R practitioners holding B2 appointments, also those holding B1 and ineligible for H.M. Forces, may apply.

Application forms may be obtained from the undersigned, to whom they must be returned on or before 21st January, 1946. The appointment will be terminated by 1 month's notice on either side.

J. B. S. MORGAN, Acting County Medical Officer.
New County Offices, Derby, 20th December, 1945.

CUMBERLAND INFIRMARY, Carlisle. Applications are invited from registered medical practitioners, including practitioners within 3 months of qualification and liable under the National Service Acts, for the post of HOUSE SURGEON (A), vacant from the 1st February next. The appointment will be for a period of 6 months. Salary is at the rate of £160 p.a., with board, &c.

Applications should be sent to the Secretary-Superintendent immediately.

Carlisle, 22nd December, 1945.

SALFORD ROYAL HOSPITAL. There are vacancies for

1 HONORARY PHYSICIAN,
2 HONORARY ASSISTANT PHYSICIANS,
1 HONORARY ORTHOPÆDIC SURGEON,
1 HONORARY GENERAL SURGEON,
1 HONORARY ASSISTANT GENERAL SURGEON,
1 HONORARY GYNÆCOLOGIST,
1 HONORARY ASSISTANT PSYCHIATRIST

at the above Hospital, and the Board invites applications for these posts which have arisen owing to the present holders having reached the retiring age laid down in the rules of the Hospital. Every candidate for the office of Physician or Assistant Physician shall be a graduate of a university requiring examination for its degrees, and shall be a Fellow or Member of the Royal College of Physicians of London, and shall be on the Medical Register. Every candidate for the office of Surgeon or Assistant Surgeon shall be a Fellow of the Royal College of Surgeons of England, and shall be on the Medical Register. The appointments are open to all, including members of H.M. Forces still on service anywhere. Owing to the exceptional circumstances arising from the war, the Board is prepared, in the case of applicants with war service, to give consideration to any representations for a grant-in-aid for a limited period. Such representations would be treated in strict confidence.

Details of the conditions of the appointments may be had on application to the undersigned, by whom applications, accompanied by testimonials and certificate of registration under the Medical Acts, should be received not later than 15th April, 1946. Overseas candidates are requested to submit the names of 3 referees in Great Britain instead of sending testimonials.

By Order of the Board,
H. B. SHELSWELL, General Superintendent.
5th December, 1945.

SALFORD ROYAL HOSPITAL. Applications are invited from registered medical practitioners for the post of AURAL REGISTRAR at a salary of £250 to £300 p.a., according to previous experience. The successful applicant will be required to attend at the Hospital on 6 mornings a week.

The appointment is open to all, including members of H.M. Forces, and applications, accompanied by 3 testimonials and a certificate of registration under the Medical Acts, should be received not later than 22nd April, 1946. Overseas candidates are requested to submit the names of 3 referees in Great Britain instead of sending testimonials.

By Order of the Board,
H. B. SHELSWELL, General Superintendent and Secretary.
12th December, 1945.

ROCHDALE INFIRMARY, Lancs. (110 Beds.) The Board of Management invites applications from registered medical practitioners, Male and Female, for the appointment, vacant shortly, of HOUSE PHYSICIAN (A). Duties include work in the Ophthalmic, Aural, and Gynæcological Departments, as well as Medical Clinic, and afford excellent opportunity for experience. Salary £200 p.a., with full residential emoluments. The successful candidate must be a member of a Medical Defence Society. Practitioners within 3 months of qualification and liable under the National Service Acts may apply, when appointment will be for a period of 6 months.

Applications to: W. WYNNE, Superintendent-Secretary.

ROCHDALE INFIRMARY, Lancs. (110 Beds.) The Board of Management invite applications from registered medical practitioners, Male and Female, for the appointment, shortly vacant, of HOUSE SURGEON (A). Salary £200 p.a., with full residential emoluments. The successful candidate must be a member of a Medical Defence Society. Practitioners within 3 months of qualification and liable under the National Service Acts may apply, when appointment will be for a period of 6 months.

Applications to: W. WYNNE, Superintendent and Secretary.

LEEDS PUBLIC DISPENSARY AND HOSPITAL. Applications are invited from registered medical practitioners for the appointments of HOUSE SURGEON (A), mainly casualty duties, and HOUSE PHYSICIAN (A). Appointments for 6 months. Salary at the rate of £150 p.a., with board, residence, and laundry. Practitioners within 3 months of qualification and liable under the National Service Acts may also apply.

Applications, stating age, qualifications, and nationality, and accompanied by copies of 3 recent testimonials, to be addressed to: CHARLES F. J. MAITRY, Secretary and Superintendent.

WESTON-SUPER-MARE GENERAL HOSPITAL. (100 Beds.) Applications are invited from medical practitioners for the appointment of HOUSE SURGEON (A) and HOUSE PHYSICIAN (A), duties to commence 1st February, 1946. Salary for each post at the rate of £200 p.a., with full residential emoluments. Practitioners within 3 months of qualification and liable under the National Service Acts may also apply, when appointment will be for 6 months.

Applications, stating age, qualifications with dates, and nationality, and accompanied by copies of 3 recent testimonials, should be addressed to: LESLIE J. FURSLAND, Secretary.

CITY OF LEICESTER. City General Hospital. Applications are invited from registered medical practitioners for the appointment of RESIDENT SURGICAL OFFICER (B1), vacant approximately 12th March, 1946. Applicants should have held house appointments and have had practical surgical experience. Preference will be given to candidates holding a higher surgical qualification. The salary scale will be from £350 to £550 p.a., plus, at the present time, war-time bonus of £29 18s., with full residential emoluments. Suitably qualified R practitioners holding B2 appointments, also those holding B1 and ineligible for H.M. Forces, may apply.

Applications (on forms supplied), accompanied by copies of 3 recent testimonials, endorsed "Resident Surgical Officer B1, City General Hospital," and addressed to the undersigned, to be forwarded as soon as possible.

E. K. MACDONALD, Medical Officer of Health.
City Health Department, Grey Friars, Leicester.

THE RADCLIFFE INFIRMARY, Oxford. Applications are invited from registered medical practitioners, Male and Female, for the following appointments:—

(1) TEMPORARY ASSISTANT RADIOLOGIST. The appointment to be whole time for 1 year and preference being given to candidates holding a Diploma in Radiology.

(2) TEMPORARY ASSISTANT OBSTETRICIAN AND GYNÆCOLOGIST. The appointment to be whole time for 1 year and preference being given to candidates holding the diplomas of F.R.C.S. and M.R.C.O.G.

The salary attaching to both these appointments will be at the rate of £750 p.a., with the opportunity of some additional emoluments. Applications by cablegram will be accepted from Service personnel, but as the post is a temporary one in each case and has to be filled as a matter of urgency it will be a waste of time for candidates whose availability depends upon release under Class B to apply. Further information can be obtained from the Administrator.

(3) OBSTETRICAL AND GYNÆCOLOGICAL REGISTRAR (B1), vacant approximately 1st April, 1946. The salary attaching to this post is at the rate of £350 p.a., with full residential emoluments. Applicants should have held house appointments and had obstetrical and gynæcological experience. Preference will be given to candidates discharged from H.M. Forces who hold the diploma of F.R.C.S. Suitably qualified R practitioners holding B2 appointments, also those holding B1 and ineligible for H.M. Forces, may apply.

Applications for the above appointments, stating age, nationality, qualifications with dates, experience and details of previous appointments, and military service, if any, and accompanied by 3 recent testimonials or the names of 3 referees, should be sent not later than Monday, 28th January, 1946, to—

29th November, 1945. A. G. E. SANCTUARY, Administrator.

UNIVERSITY OF ABERDEEN. Crombie Ross Chair of Mental HEALTH. A Chair of Mental Health has been instituted in the University of Aberdeen. Persons who desire to be considered for the post are requested to lodge their names with the Secretary of the University by 30th March, 1946.

Conditions of appointment may be obtained from—

The University, Aberdeen. H. J. BUTCHART, Secretary.

UNIVERSITY OF ABERDEEN. Senior Lectureship in the Department of Mental Health. The University Court will shortly proceed to the appointment of a full-time Lecturer in the Department of Mental Health at a salary of £650 to £800, placing according to qualifications and experience. Extensive experience and qualifications in medical psychology are essential. Persons desirous of being considered for the office are requested to lodge their names, together with testimonials and/or references, on or before 30th March, 1946. Successful candidates on National Service may be granted leave of absence until released.

Conditions of appointment may be obtained from—

University of Aberdeen. H. J. BUTCHART, Secretary.

ULSTER HOSPITAL FOR CHILDREN AND WOMEN (Inc.), HAYPARK, Ormeau-road, BELFAST, NORTHERN IRELAND. A vacancy exists on the Honorary Medical Visiting Staff for a position in the Gynæcological Department. Applications are invited from practitioners including those serving in H.M. Forces.

Full particulars may be had from the undersigned, to whom application should be made before 31st March, 1946.

A. E. TITTERINGTON, Honorary Secretary.

BIRMINGHAM ACCIDENT HOSPITAL AND REHABILITATION CENTRE, Bath-row, BIRMINGHAM, 15. Applications are invited from registered medical practitioners for the appointment of RESIDENT SURGICAL OFFICER (B1), vacant mid-January. Applicants should have held house appointments and had surgical experience. Preference will be given to candidates holding diploma of F.R.C.S. The appointment will be for a period of 1 year. Salary is at the rate of £300 p.a. Suitably qualified R practitioners holding B2 appointments, also those holding B1 and ineligible for H.M. Forces, may apply.

20th December, 1945. A. A. MACIVER, Secretary.

JOINT MANAGEMENT COMMITTEE FOR DYKEBAR MENTAL HOSPITAL. Applications are invited from registered practitioners for the temporary appointment of ASSISTANT MEDICAL OFFICER (B1) at Dykebar Mental Hospital. Salary £500 p.a., plus war bonus, with board, lodging, and laundry at the Hospital. Suitably qualified R practitioners holding B2 or B1 appointments may apply, but they must have obtained the sanction of the Scottish Central Medical War Committee.

Applications, stating age, qualifications, and details of previous experience, along with copies of 3 recent testimonials, should be sent to the Medical Superintendent, Dykebar Mental Hospital, By Paisley, on or before 7th January, 1946.

ROBERT URQUHART, Clerk.

County Buildings, Paisley, 18th December, 1945.

OLDHAM ROYAL INFIRMARY. (203 Beds.) Applications are invited from registered medical practitioners, Male and Female, for the appointment of HOUSE SURGEON (A), vacant 30th January. The salary is at the rate of £175 p.a., with full residential emoluments. Practitioners within 3 months of qualification and liable under the National Service Acts may apply, when the appointment will be for a period of 6 months.

Applications, together with copies of 3 recent testimonials, to be submitted to—

F. W. BARNETT, General Superintendent and Secretary.

OLDHAM ROYAL INFIRMARY. (203 Beds.) Applications are invited from registered medical practitioners, Male and Female, for the appointment of HOUSE SURGEON (A), now vacant. The salary is at the rate of £175 p.a., with full residential emoluments. Practitioners within 3 months of qualification and liable under the National Service Acts may apply, when the appointment will be for a period of 6 months.

Applications, together with copies of 3 recent testimonials, to be submitted to—

F. W. BARNETT, General Superintendent and Secretary.

COUNTY BOROUGH OF GREAT YARMOUTH. Applications are invited from qualified medical practitioners, including those serving in H.M. Forces, holding a degree in or Diploma in Public Health, for the appointment of MEDICAL OFFICER OF HEALTH AND SCHOOL MEDICAL OFFICER, at a salary of £950 p.a., rising by annual increments of £50 to a maximum of £1150 p.a., inclusive of all fees and emoluments, plus a car allowance at the Council's scale, and cost-of-living bonus. Applicants must be fully qualified to carry out all the duties of Medical Officer of Health, School Medical Officer, Chief Tuberculosis Officer, Superintendent of the Borough Isolation Hospital, Port Medical Officer, and such other duties as may from time to time be prescribed by the Council. The appointment will be subject to the approval of the Ministries of Health and Education, and will also be subject to Section 110 of the Local Government Act, 1933, and to the Sanitary Officers' (Outside London) Regulations, 1935. The appointment is also subject to the provisions of the Local Government Superannuation Act, 1937, and to a medical examination. The person appointed will be required to give 3 months' notice to terminate the appointment and during his tenure of the office to live within the Borough, and to pay over to the Council all moneys received by him in connexion with the appointment from whatever source such moneys are received. He must devote his whole time to the duties of the office and not engage in private practice nor accept any other appointment except with the consent of the Council. Applicants who at present hold temporary or permanent whole-time appointments as Medical Officers (including Medical Officers in the School Medical Service) are reminded of the necessity for obtaining from their Principal Regional Medical Officer the consent of the Ministry of Health to their application for the appointment.

Applications for the appointment endorsed "Medical Officer of Health," stating age, qualifications, and details of previous experience, and accompanied by copies of not more than 3 recent testimonials, must reach me not later than NOON on the 30th April, 1946. Applicants serving overseas may furnish the names of 3 referees in lieu of forwarding copies of testimonials and should indicate where a telegram or cable will reach them if selected for interview. Canvassing, either directly or indirectly, will disqualify, and applicants must disclose in writing whether to their knowledge they are related to any member of or holder of any senior office under the Council. A candidate who fails to do so will be disqualified, and if appointed will be liable to dismissal without notice. The consent of the Minister of Health has been obtained to the making of this appointment.

FARRA CONWAY, Town Clerk.

Town Hall, Great Yarmouth, 14th December, 1945.

COUNTY BOROUGH OF SOUTHEND-ON-SEA. Applications are invited from registered medical practitioners, Male and Female, including R practitioners who now hold A posts, for the appointment of RESIDENT ASSISTANT MEDICAL OFFICER, Grade II (B2), at the Southend Municipal Hospital, Rochford, Essex. Previous experience in the administration of anæsthetics is desirable. The salary is at the rate of £325 p.a., with full residential emoluments, plus war bonus. The person appointed will be liable to pay superannuation contributions if the provisions of the Local Government Officers' Superannuation Acts are applicable. To R practitioners the appointment will be limited to 6 months; otherwise 1 year and subject to 1 month's notice on either side. The appointment becomes vacant 1st February, 1946.

Application forms obtainable from the Medical Superintendent, Southend Municipal Hospital, Rochford, Essex, should be returned as soon as possible.

ARCHIBALD GLEN, Town Clerk.

Town Clerk's Office, Southend-on-Sea.

COUNTY BOROUGH OF SOUTHEND-ON-SEA. Southend MUNICIPAL HOSPITAL, ROCHFORD. Applications are invited from Women practitioners for the post of ASSISTANT RESIDENT OBSTETRIC OFFICER (B1) at the Council's Municipal Hospital, Rochford (4 miles from Southend-on-Sea). Salary scale £400–£25–£500, together with full residential emoluments and war bonus amounting to £24 1s. p.a. Candidates should have had postgraduate experience in midwifery, and preference will be given to those possessing a senior qualification. In fixing the commencing salary, regard will be had to previous experience and qualifications. The Local Government Superannuation Act, 1937, will apply.

Application forms obtainable from the Medical Superintendent, Southend Municipal Hospital, Rochford, Essex.

ARCHIBALD GLEN, Town Clerk.

Town Clerk's Office, Southend-on-Sea.

THE LLANELLY AND DISTRICT MEDICAL SERVICE propose to appoint shortly a CONSULTANT PHYSICIAN. This is a new post carrying a salary of £1250 p.a. and it also permits of limited private consulting practice. The person appointed will become an Honorary Physician to the Llanelly and District General Hospital. The post is open to registered medical practitioners possessing a higher degree in medicine, and so as to afford ample opportunities to persons now serving with H.M. Forces to apply, the closing date for applications will be deferred until at least 4 months from the date this announcement appears.

Further particulars are obtainable from the Secretary, W. THOMAS, F.C.I.S., 28, Coleshill-terrace, Llanelly, Carms.

HUDDERSFIELD ROYAL INFIRMARY. (321 Beds.) House Surgeon (A), required to commence 6th February, 1946. Salary at the rate of £150, with full residential emoluments. Practitioners within 3 months of qualification and liable under the National Service Acts may apply, when the appointment will be for a period of 6 months.

Applications, together with copies of 3 recent testimonials, to be addressed as soon as possible to—

H. J. JOHNSON, General Superintendent and Secretary.

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COUNTY INFIRMARY, Carmarthen. Applications are invited from registered medical practitioners, Male and Female, for the appointment of RESIDENT MEDICAL OFFICER (B2), vacant 20th January. The salary is at the rate of £350 p.a., with full residential emoluments. The Hospital is a General Hospital (primarily surgical) and with an attached Obstetric Unit. R practitioners who now hold A posts may apply, when the appointment will be limited to 6 months; otherwise a period of 12 months.

Applications to the Secretary.

DERBYSHIRE HOSPITAL FOR SICK CHILDREN. (84 Beds.) Applications are invited from registered Lady medical practitioners for the appointment of HOUSE SURGEON (B2), vacant 1st February, 1946. Salary £200 p.a. The Hospital is recognised by the Conjoint Board for the purposes of the Diploma in Child Health.

FRANK STAPLEFORD,
North-street, Derby. Acting Secretary.

URBAN DISTRICT OF MAESTEG. Applications are invited for the temporary whole-time joint appointment (Male or Female) of MEDICAL OFFICER OF HEALTH for the Urban District of Maesteg and ASSISTANT SCHOOL MEDICAL OFFICER for the Glamorgan Education Committee. As regards his duties as Assistant School Medical Officer, the officer will act under the general control of the County Medical Officer of Health and will be required to carry out such duties as may from time to time be prescribed by the Committee. The officer appointed will also be required to hold the offices of Medical Officer to the Maternity and Child Welfare Committee and Superintendent of the Isolation Hospital. Applicants must be duly qualified medical practitioners, hold a diploma in Sanitary Science, Public Health, or State Medicine, and able to perform the duties prescribed for Medical Officers of Health in Regulation 17 of the Sanitary Officers (Outside London) Regulations, 1935. If already in whole-time public health employment by a local authority, they will not be eligible for the appointment. The total salary for the joint appointment will be at the rate of £800 p.a., plus cost-of-living bonus and £52 p.a. travelling allowance. Private practice will not be permitted. The appointment will be subject to 1 month's notice by the officer and may be determined by the Council by 1 month's notice with the consent of the Minister, or by the Minister without notice. The provisions of the Local Government Superannuation Act, 1937, will apply so far as applicable, and for this purpose the successful candidate will be required to pass a medical examination.

Applications, stating date of birth, and giving full particulars of qualifications and experience, should be submitted so as to reach the undersigned not later than the 2nd day of February, 1946.

Dated this 1st day of January, 1946.

A. KING DAVIES, Clerk of the Council.

Lloyds Bank Chambers, Maesteg, Glam.

MINISTRY OF HEALTH. Blood Transfusion Service. The Minister of Health invites applications for the appointment of Temporary Medical Officers in the Blood Transfusion Service in the South-Western Region (Counties of Cornwall, Devon, Gloucester, Somerset, and Wiltshire) with headquarters at Bristol:—

JUNIOR MEDICAL OFFICER to assist the Blood Transfusion Officer at a salary of £250 or £350 p.a. (according to qualifications), plus cost-of-living bonus. An allowance of £100 p.a. will be payable if board and lodging is not provided.

Applications, stating age, qualifications with dates, present appointments, if any, and previous experience, should be addressed to the Director of Establishments, Ministry of Health, Whitehall, S.W.1, not later than the 18th January, 1946.

THE SOUTH CANTERBURY HOSPITAL BOARD, Timaru, NEW ZEALAND. Applications by air mail, closing with the undersigned on 1st April, 1946, are invited for the position of Part-time RADIOLOGIST to the Timaru Public Hospital, with right of private practice. Competent full-time Radiographer employed. Salary at rate of £500 N.Z. p.a., with 4 weeks' annual leave on pay. Successful applicant will have option of taking over a private hospital radiology practice without goodwill payment, but would be required to purchase at valuation (approximately £800), on easy terms, the existing plant housed in suite of rooms which Hospital will lease for £208 p.a.

Further particulars may be obtained from Lt.-Col. D. G. WALLACE, N.Z.M.C. Liaison Officer, C/-N.Z. House, Strand, London. Applicants to state age, married or single, qualifications, previous experience, and to enclose not more than 3 copies only of recent testimonials.

Timaru, New Zealand. H. G. NAYLOR, Secretary.

THE OTAGO HOSPITAL BOARD. University of Otago and DUNEDIN HOSPITAL, NEW ZEALAND. Applications are invited for the positions of 2 SENIOR ASSISTANTS on the Medical Unit. Candidates must hold a degree in medicine of a British university, must have been qualified for 3 years, and have held resident hospital appointments. The duties of the successful applicants will consist of routine hospital work and teaching under the direction of the Professor of Medicine. Salary to be at the rate of £800 p.a. each, non-resident, rising by annual increments of £100 to £1000 p.a. each.

Full details may be obtained on application to the Office of this Newspaper, and the High Commissioner's Office, 415, Strand, London. JOHN JACOBS, Secretary.

The Otago Hospital Board, Dunedin, 20th November, 1945.

THE OTAGO HOSPITAL BOARD. University of Otago and DUNEDIN HOSPITAL, NEW ZEALAND. Applications are invited for the position of CHILDREN'S PHYSICIAN to the Medical Unit of the Dunedin Hospital, at a salary at the rate of £1500 p.a., living out, plus £100 p.a. as Lecturer, Otago University.

Further information in regard to this appointment can be obtained from the Office of this Newspaper, and the High Commissioner's Office, 415, Strand, London.

JOHN JACOBS, Secretary.

The Otago Hospital Board, Dunedin, 20th November, 1945.

HIS MAJESTY'S COLONIAL SERVICE. A vacancy exists for a SPECIALIST IN PÆDIATRICS, Trinidad. Candidates must be British subjects, and should have had postgraduate experience in general medicine with special experience of diseases of children in a large general hospital. The selected candidate, who must possess membership of one of the Royal Colleges of Physicians, will be assigned duties of a general physician but, in addition, will be responsible for the medical treatment of children admitted to the Colonial Hospital, Port of Spain. He will be required to organise an Out-patient Department for diseases of children and will be required to perform such other duties as the Director of Medical Services may decide. The salary of the post is on the scale $4800–$240–$5280; a temporary war allowance (non-pensionable) at the rate of $216 p.a. is payable on salary not exceeding $4800 p.a. The rate of exchange is $4·80 to £1. An initial salary above the minimum may be offered according to the qualifications and experience of the candidate selected. No quarters are provided, but free first-class passages on first appointment for the officer and his family, not exceeding 5 persons in all, are provided. Provided it does not interfere with his official duties the officer may, as a privilege, be permitted to engage in consulting medical and pediatric practice. The appointment is pensionable but the selected candidate will be required to serve a probationary period.

Further information and forms of application may be obtained from the Director of Recruitment (Colonial Service), 15, Victoria street, S.W.1.

AUCKLAND HOSPITAL BOARD, New Zealand. Applications, addressed to the undersigned and closing on the 28th day of February, 1946, are invited from registered medical practitioners of the British Empire of at least 10 years' standing and having wide clinical and administrative experience for appointment as SUPERINTENDENT-IN-CHIEF of the Board's Institutions at a salary of £2000, rising by annual increments of £50 to a maximum of £2250, living-out. (New Zealand currency.) The Board's Institutions include 4 major hospitals accommodating 2600 patients with other hospitals in course of planning. The position will be wholly administrative.

Conditions of appointment, accompanying explanatory memorandum and official form of application, may be obtained from the office of the High Commissioner for New Zealand, 415, Strand, London, W.C.2.

Applications should be endorsed on envelope "Superintendent-in-Chief" and sent to New Zealand direct by Air Mail.

R. F. GALBRAITH, Secretary.

Doctors, Male and Female, required for Locums and Assistantships. Vacancies for Hospital Locums and Ships' Surgeons. Practices and Partnerships for disposal.—Write: A. SHAW, Medical Transfer Agent, Premier Buildings, 88, Church-street, Liverpool.

Dispenser wanted. No Sunday work or Panel dispensing.—Dr. YOLLAND, 125, Bromley Common, Kent.

Young Lady Receptionist, doctor's wife, State-registered Nurse, some secretarial experience, desires post as Nurse-Receptionist to Doctor in London area.—Address, No. 802, THE LANCET Office, 7, Adam-street, Adelphi, London, W.C.2.

Book-keeping and Dispatch of Accounts for Medical Practitioners London area, undertaken by demobilised A.T.S. Officer, anxious to rebuild pre-war connexion. Also Income-tax if desired. Moderate fees. Good references.—Address, No. 814, THE LANCET Office, 7, Adam-street, Adelphi, London, W.C.2, or phone evenings MOUntview 7923.

Doctor recently demobilised after 6 years' Service is in urgent need of small Unfurnished Flat in Central London area. Would anyone help? Kindly ring WELbeck 9693 after 6 P.M. or Address, No. 815, THE LANCET Office, 7, Adam-street, Adelphi, London, W.C.2.

Nursing-homes for Sale suitable for Practitioners: Devon, £3000; Lo.W., £7000; Surrey, £9000; Sussex, £10,500, £12,500 (coast); Suffolk, £14,000; N. Wales coast, £15,000; Kent, £18,000. Substantial mortgages arranged where desired.—Further details from: NATIONAL ASSOCIATION OF NURSING HOMES (business section), 15, Castle-street, Exeter.

Wanted urgently by Medical Officer just released Army, House or large Flat to rent or purchase, within 20 miles Central London, preferably Thames Valley.—Address, No. 813, THE LANCET Office, 7, Adam-street, Adelphi, London, W.C.2.

Literary work on Medical and Psychological subjects undertaken by Woman honours graduate accustomed to research.—Address, No. 787, THE LANCET Office, 7, Adam-street, Adelphi, London, W.C.2.

Nursing-home. Very attractive Freehold Residence in grounds of 1 acre, 14½ miles S.W. district, eminently suitable for high-class nursing-home. House and gardens in excellent condition.—Further particulars apply: CLARKE JAMES, Savoy House, 115, Strand, W.C.2.

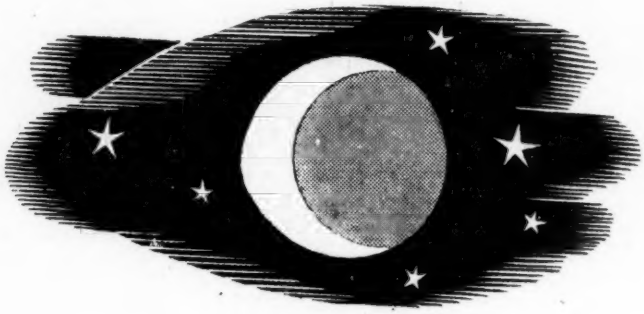
Book wanted: Ramazzini's "Diseases of Tradesmen." Please state price to: Address, No. 812, THE LANCET Office, 7, Adam-street, Adelphi, London, W.C.2.

Very reasonable offer taken for quick Sale of small Country Practice with great possibilities. Small panel.—Write to: P. BASHAM, St. Keverne, Helston, Cornwall.

Harley Street and District. A number of excellent Consulting ROOMS are available for full and part-time use at moderate rents. Particulars on application.—ELGOOD & Co., 1, Bentinck-street, Welbeck-street, W.1. WELbeck 8974.

Microscopes Wanted for important work. Send particulars with price required.—WALLACE HEATON LTD., 127, New Bond-street, London, W.1.

Medical Photographs and Drawings for illustrations, records, &c. —Write for particulars: E. O. SONNTAG, 159, Bickenhall Mansions, Baker-street, W.1. WELbeck 8860.



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